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VERTIGO AND EPILEPSY IN THE HORSE.*

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THOUGH derangement of the functions and disease in the structure of the nervous system—and particularly of the brain—are much less frequent in the domestic animals than in mankind, yet in some respects, and especially with regard to that most useful creature, the horse, they are well worthy the attentive study of the veterinarian. The less frequency of nervous disorders in animals, compared with their common occurrence in our own species, is undoubtedly due to the relatively smaller volume and limited activity of the brain and other nerve centres: the moral and intellectual faculties, which play such a large part in inducing cerebral derangements in man, being but little developed in them. Therefore it is that the idiopathic affections of the nervous system of animals are more rare than the local diseases of other organs in them, and consequently do not come so often under the observation of the veterinary surgeon. But as if to com-

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pensate for this infrequency, and to compel him to study these maladies and derangements as closely as the physician who ministers to the mind diseased of mankind, the veterinarian is placed at a serious disadvantage—as is only too often the case in other instances—when compared with the latter. The signs which indicate disease of the brain are, in animals, chiefly those of a functional character, and we cannot resort to the ordinary direct means of investigation which the physician may avail himself of, and with such benefit to his patient and his own reputation. We cannot be informed, verbally, by our patients, as to their premonitory sensations,—whether they have spectral illusions, confusion of thought, are moved by fear or terror, or experience the strange surging auditory sensation so dreaded by epileptic patients, or that formicatory feeling as of an insect creeping on the limbs and body, and known as the *aura epileptica;* neither can we ascertain from them the extent to which vision is affected by the cerebral disturbance, nor test this still further by the modifications in the voice, etc. These valuable aids we cannot avail ourselves of; and, as with so many other diseases of animals, we must rely entirely upon a careful examination of them, and upon our own reasoning powers, in order to arrive at a correct diagnosis.

For instance, no one can deny that animals suffer from headache (*Cephalalgia*); but of its presence or severity we have no means of judging, save from the symptoms they present,—dulness, prostration, drooping head, oftentimes injected eyes, and a certain degree of irritability. Giddiness and delirium are only made known to us in an animal by sudden stopping, shaking of the head, or often furious, violent movements; more or less apparent loss of consciousness; indifference to injury, either from external objects or from its own efforts; partial or total loss of sight, heedlessness of surrounding objects, and difficulty in eating or swallowing. And in some brain affections we have to note the irresistible tendency of animals to push forward, even against such obstacles as a wall or barricade; more rarely to perform retrograde or circular movements, often or always in one direction. Not unfrequently, we observe that the movements of the animal are not co-ordinate,—that they are uncertain,

halting, and irregular, as if the creature were intoxicated. Somnolescence, coma, or drowsiness sometimes appear, and assist us in forming an opinion as to the nature of the brain disturbance; in other instances we witness convulsions, epileptiform seizures, or tetanic contractions of the muscles; and in others, again, we have paralysis, and more or less complete loss of sensation; while, though more rarely, in some cases we may have all the signs of cerebral apoplexy accompanying cephalic disease.

The difficulties in diagnosis of the disorders and diseases of the brain are, therefore, numerous; and nothing but experience, educated and careful observation, and a correct knowledge of the cerebral functions in health, are likely to serve the veterinary surgeon in this direction. The difficulties are greatly increased from the fact, that many of the phenomena which would indicate an idiopathic affection of the nervous system are sympathetic, and due, primarily, to disease or derangement of other, and even distant organs, independent altogether of constant anatomical lesions. Thus, loss of motor power and sensibility, convulsions, vertigo, etc., though they may point to the brain as their source, yet may be due to disease or derangement elsewhere.

They may also be originated by external agencies which act upon the nervous system, besides other organs, at the same time. Heat, foul air, severe exertion, indigestion, animal or vegetable poisons, narcotics, alterations in the composition of the blood, etc., all act in producing either disease or disturbance in the nervous system, as well as in other organs.

It is sometimes exceedingly difficult to distinguish, from the symptoms, between primary alteration or disease in the nerve substance, and that which is secondary, or consecutive to changes in adjoining organs—such as the envelopes of the brain or spinal cord. More particularly is this the case with functional disturbance, in which, though symptoms of brain disease are apparently well marked, yet pathological anatomy does not furnish us with any sufficient indications of material alteration in the nerve-tissue to account for them.

There are certain groups of symptoms which, appearing under particular conditions, may give rise to suspicion as to the existence of a material alteration in the brain—such as sudden attacks of

vertigo, followed by permanent and complete hemiplegia, partial paralysis, convulsions, accompanied by loss of consciousness, epileptoid seizures, etc.; but yet we find these symptoms present in exceptional cases, and nevertheless no cerebral lesion can be discovered after death,—proving that, though in the majority of instances they may be pathognomonic of material alterations, yet there is nothing absolutely certain about them. It has also been pointed out that there is a number of pathological conditions which do not appear to be due to encephalic lesions—such as chorea, hysterical nymphomania, and that state which has been designated "immobility"; but in which we, nevertheless, sometimes find alterations after death that were not suspected during life.

So that neither in human nor in veterinary medicine is there any particular means by which we may distinguish, in many disorders of the brain, whether or not there are any definite lesions; and the collective symptoms, with their mode of evolution, are all that we have to guide us in hazarding an opinion as to the presence or absence of alterations in that organ.

It has often been attempted to establish, by particular signs, the lesions in different parts of the brain; but after ulterior observations, it has been concluded that the anatomical diagnosis of a disease of this part, in only too many cases, cannot be exact or trustworthy. Congestion, inflammation, effusion, and the presence of entozoa in the brain, can certainly be often distinguished during life; lesions of the cerebrum can frequently be differentiated from those of the cerebellum, by the symptoms presented while the animal is alive; and yet we not rarely find extensive changes in these, on *post-mortem* examination, without any adequate reason for suspecting their existence before death.

It has been sought to distinguish disease of the envelopes of the brain from those of the brain-tissue; and it has been admitted that in the latter there is generally slow and progressive paralysis, and a derangement in locomotory power, which is not present in simple affections of the membranes; but this is not constant, and inflammation of the brain-tissue has been found after the death of animals which exhibited no sign of paralysis. Only too frequently, it is not until after functional disturbance has been

going on for some time, that an apparent anatomical alteration is developed.

The symptoms of nervous diseases are chiefly those of a functional character, and are marked either by excess or deficiency; not unfrequently they are intermittent, notwithstanding that the lesions may exist during the intermittent periods when the symptoms are absent. Sometimes disease appears suddenly, and then the symptoms are more marked; but when it is developed slowly and gradually, no symptoms may be manifested until a certain stage has been arrived at. In some of the diseases progress is rapid, and in others—by far the larger number—it is slow.

The complex organisation of the brain and nervous system, as we have seen, opposes a barrier to anything like an exact knowledge of its pathological states being obtained, and which has not to be encountered in investigating the morbid conditions of the other systems of the animal body. And these pathological states are numerous; for not only do we have particular neuroses of the nervous centres, but there are also inflammatory and congestive conditions of these, impaired nutrition affecting them, diseases due to particular diatheses, congenital anomalies, altered relations, tumours, traumatic lesions, and the changes or disturbance produced by helminths, etc.

We have also disturbances due to certain conditions to which these centres are exposed—such as hyperæmia—produced in various ways, but often in the brain when badly-fitting harness offers an obstacle to the return of the blood from that organ; disease of the envelopes; effusion of serum on its surface or in its ventricles; alterations in the bloodvessels; compression by tumours or fluids, etc.

So that, in reality, in studying the diseases of the nervous centres, we have to take into consideration a large number of influences, one or more of which, either by acting directly or sympathetically on this most intricate organisation, may give rise to a diversity of morbid manifestations, the exact nature of which it is often difficult, if not altogether impossible, to determine in our present state of knowledge. We will select two maladies to illustrate this position, as they will afford us a good idea of the

difficulties surrounding the subject of nervous derangements in general. These diseases are Epilepsy and Vertigo.

Epilepsy affects all the domesticated animals—even fowls; but it is perhaps most frequent in the dog. It is characterised by a sudden attack of convulsions—marked by clonic spasms of the voluntary muscles, when either in or out of the stable or dwelling—more frequently when out of doors; and a more or less complete paroxysmal loss of consciousness and sensation, which, in the great majority of cases, causes the animal to fall. The attacks appear after variable intervals, perhaps a month or more, during which the animal may not offer any indication of ill-health.

We have said that the attack is sudden, and generally it is so. But, nevertheless, in some instances there are premonitory symptoms—such as restlessness, tremblings, agitation; the horse may emit a shrill scream or groan; the dog will give a howl or cry; the ox will bellow as if afraid; then the animal will stagger for a few steps, placing the limbs wide apart as if to prop up the body, and soon fall heavily, as if shot and deprived of sensation; general convulsions—clonic, then tonic—agitate the whole frame, but chiefly the head, neck, and limbs; the eyelids are more or less apart, and the eyes are prominent and haggard, and roll about in their orbits in a most remarkable and characteristic manner; the pupils are usually widely dilated, and insensible to the stimulus of light; the conjunctivæ are injected, and the eyelids more or less closed; the hair is erect; the head is repeatedly raised and dashed against the ground; the jaws may be spasmodically closed, and the tongue fixed between the teeth, or the lower jaw may be moved from side to side, and the teeth ground against each other; a foamy—often sanguinolent—saliva flows from the mouth; the nostrils are widely dilated, and the upper lip frequently everted upwards; the respiration is sighing, jerking, and anxious, with abrupt expirations; and sometimes the horse moans, the dog and pig emit plaintive cries, and the ox bellows. At the crisis of the attack, the limbs are rigidly extended and moved about in a convulsive manner; the thoracic and abdominal muscles participate in the convulsive contractions; the flanks are drawn up; and tetanic spasms vary the convulsions. The body is covered with perspiration; the jugular and superficial

veins—especially those of the head—are greatly distended; the pulse is small, slow, and irregular in its beats, or it may be strong and tense; while the heart's contractions are energetic and bounding, at other times scarcely perceptible.

Gradually the tonic contractions give place to those of a clonic character; the convulsions diminish, perhaps affecting one side more than another; often fæces and urine are passed involuntarily; then tranquillity ensues; consciousness and sensibility return; and the animal, with a stupid, feeble stare, attempts to rise. This it at last succeeds in doing, and it may seek for water and food; but for some time it remains weak and prostrate, and the expression of its eye shows that it is ill at ease. It is often observed that the dog, as soon as it is able to get up, runs away, as if hotly pursued by some one.

The seizure may last for only a few minutes, or it may continue for more than a quarter of an hour: the period depending generally on the duration of the disease and the number of attacks. It may happen that an animal will have two or three seizures within as many days, and then a long interval will elapse before they recur. With the pig and dog the attacks are generally more frequent, sometimes only an hour or two intervening; and death may rapidly ensue in these animals—apparently from suffocation; though Epilepsy rarely leads to a fatal termination in horses or cattle.

The creature does not, in every case, offer all the symptoms just enumerated; sometimes the standing attitude is maintained throughout, or until near the end; in some instances the animal leans against some support, and the muscles of the face, head, neck, and trunk are more or less convulsed, but the limbs are not so affected; on the contrary, they are spasmodically extended and held wide apart, the creature staggering about until the body meets something to rest against. This comparatively slight attack corresponds to the *petit mal* of the French physicians, a somewhat remarkable instance of which recently occurred in my own experience. An aged carriage-horse belonging to Major L., instructor in field works at Chatham, had been attacked for a long time, and at irregular intervals, with what the coachman termed "Staggers." The attacks did not take place in the stable—at

least, the animal was never observed to be affected there—but only when in harness; and the seizures were becoming more frequent and serious. Not being quite satisfied with the coachman's description of the symptoms, I drove several times with him, but was unfortunate in not witnessing an attack. One day subsequently, when in double harness, and some distance from home, the horse was so alarmingly affected that it was decided to destroy it, as fears were entertained of dangerous consequences. When being led from the stable to the place where it was to be killed, strange to say, it had a most severe attack in my presence. The symptoms were suddenly developed, and were of a very startling kind. The animal did not fall, but began to stagger about, the limbs being rigid and stuck out like props. This staggering continued until a wall was reached, against which the animal leaned. In the meantime, the facial muscles were convulsed; the nostrils were widely dilated; the ears moved to and fro rapidly; the upper lip was frequently everted; the jaws were champed continuously together, and the mouth was soon filled with foam; the respiration was almost spasmodic; and the tail was erect, and quivered. During the paroxysm, defecation occurred twice. The number or character of the pulse could not be ascertained, because of the convulsive movements. The attack lasted nearly a quarter of an hour, and towards its termination the breathing became deep and almost sighing; there was a flow of urine; consciousness—which had been partially suspended—gradually returned, and the animal could then be moved to the place of execution; though it had a most dejected, woe-begone expression, and was very torpid in its movements. It was destroyed by insufflation in the jugular vein, and a most careful *post-mortem* examination was made. Nothing abnormal, however, could be detected, except marked anæmia of the brain and medulla oblongata, the lumen of the larger arteries of which appeared to be considerably diminished. The brain tissue itself had a peculiar yellowish tint, and it was more dense than usual.

The attack of Epilepsy, as has been said, varies in extent and severity. It may only affect the muscles of the jaws, neck, shoulders, and fore-limbs; or the eyes only may *pirouette* in

their orbit, and the eyelids and lips move convulsively. Cases have been described in which there was only jerking of the head, spasm of the muscles of the lower jaw, rolling about of the eyes, grinding of the teeth, and a small quantity of foamy saliva about the lips. It has been remarked, however, that this partial Epilepsy especially occurs during work, and recurs more frequently than the serious attacks. In a chronic form, animals liable to Epilepsy may live for years; but if they do not eventually succumb to accidents or injuries inflicted during the attacks, they usually lose condition, become feeble and dejected-looking, and assume a kind of imbecility or idiotism. Or death may take place after a few attacks, and be due to cerebral apoplexy or asphyxia.

Recovery has been known to take place, as it were, spontaneously. Jessen gives an instance in which a horse had a seizure every time the stable door was opened, and some of these attacks lasted for nearly an hour; on one occasion, it had fourteen minor attacks in four hours; for ten days it could not stand, but it quite recovered eventually.

Schrader alludes to a horse which had been epileptic for six months, the attacks numbering at last as many as nine a-day, and being excited by the least noise. A state of torpor supervened, and as this gradually disappeared, so did the seizures, and finally the animal got well. And Nickerle cites the case of another horse which, for several days, had many attacks,—as many as two in the hour,—some of them lasting a quarter of an hour. Notwithstanding the extreme prostration into which these seizures brought it, it recovered.

Nevertheless, we have often to note the fact that the malady is incurable. With the horse it is at least dangerous, as it may be seized at a moment when those who are with or about it will incur risk of injury.

With regard to the pathological anatomy of Epilepsy, no constant lesions indicate its existence, and nothing positive as to the seat or nature of the affection can be learned. The alterations observed in man and animals have been so numerous and varied in many cases, and as entirely absent in perhaps more, that we may safely say it has no particular pathological lesions to characterise it.

In some cases the brain may appear quite healthy, in others we find hyperæmia, or hæmorrhage when death has been due to apoplexy; in the dog, acute or chronic œdema and softening of the brain have been observed; in horses, effusion into the lateral ventricles has sometimes been noted; while alterations in the texture of the cranium, the membranes enveloping the brain, and in the texture of the brain itself, have been in some instances ascribed as the determining cause of the disease. Anæmia of the brain may be present, and constitute itself the cause of the malady. In the instance we have just given, it was the only unusual feature present. That anæmia of this organ will give rise to epileptoid symptoms, is a matter of ordinary observation in those cases in which animals die from hæmorrhage.

But it may be fairly asserted that nothing in the pathological anatomy of the disorder has been found to explain, in every case, the occurrence of the paroxysmal seizures, which are evidently due to stimulation of the motor nerves proceeding from or through the medulla oblongata; nor the paralysed condition of the cerebrum, which leads to loss of sensibility and consciousness.

The epileptic seizures would appear to depend primarily, and more particularly, on some kind of irritation of the medulla oblongata; but we cannot explain how or why the other nervous centres are involved. Schrœder Van der Kolk, who appears to have studied the disease somewhat closely in mankind, was of opinion that the first cause of Epilepsy consists in an exalted sensibility and excitability of the medulla oblongata, rendering this part liable to discharge its force in involuntary reflex movements, on the application of irritants which excite it; and that this irritation may be external (operating on the fifth pair of nerves), or in the brain or intestines. In the commencement there is only exalted sensibility, which may be removed and a cure effected; but when the malady has been in existence for some time, organic vascular dilatation occurs in the medulla, too much blood is supplied, and the ganglionic system of nerves is greatly irritated. Every attack increases the mischief, by promoting the vascular dilatation. Moreover, increased exudation of albumen ensues, it is stated, from the constantly

distended vessels; the coats of these become thickened, the medulla is gradually hardened, and fatty degeneration, softening, and other pathological changes occur.

The causes of Epilepsy are described as numerous. They are enumerated as follows: hereditary predisposition, species (as the dog, which appears to be most liable), breed, temperament, youth, and state of perfection. As occasional causes, we have fear, bad treatment, plethora, the period of œstrum, immoderate exercise of the genital organs in the male, worms in the intestines or frontal sinuses, second dentition, irritation of the skin, an inactive life, mal-hygiene, etc.

There can be no doubt that Epilepsy may be due to irritation of a nerve, and that it may exist without any serious organic change in the nervous centres, constituting what Brown-Séquard has designated "reflected Epilepsy." This authority discovered that, in certain animals, irritation of the sciatic nerve by a broken bone, or by some other causes—crushing, tying, or cutting,—invariably produces a temporary or persistent Epilepsy; and that this convulsive affection never disappears without treatment, unless the irritation has ceased in the sciatic nerve. Brown-Séquard is of opinion, that of all the nervous and other complaints that may be due to an irritation starting from the trunk, branches, or ultimate ramifications of nerves, very few, if any, are more frequent than Epilepsy. Reflected Epilepsy is not at all uncommon in animals, and a case is recorded in which an attack could be produced at will in a horse, by merely pressing on a tumour situated in the parotideal region.

With regard to *Vertigo*, we have a similar condition, so far as the loss of consciousness and sensibility is concerned, in the majority of cases; but it differs from Epilepsy in the absence of convulsive movements, and also, to some extent, in its causes. It might be inferred, from the difference in the symptoms, that Vertigo was more particularly limited to the cerebrum, and was largely dependent upon the condition of the circulation in that portion of the nervous system; while Epilepsy was a disordered condition—functional or organic—of the medulla oblongata, in which reflex action played a large part.

The symptoms of "Vertigo," "Megrims," or "Staggers," are

familiar to every one who has had much to do with animals or the treatment of their diseases.

It is observed most frequently in the horse, and much more rarely in other animals. In some parts of Germany it is almost enzoötic in the equine species.

It is characterised, in some cases, by periodic attacks, like Epilepsy, when it is idiopathic; and it very often accompanies other diseases or derangements of organs, disappearing with them, or remaining after they have been cured. Vertigo or delirium may also appear as a consequence of over-repletion with food; the ingestion of poisonous substances; plethora; confinement in close hot stables, on shipboard, or in railway carriages; retarded circulation by badly-fitting harness; disease of the heart or bloodvessels; a high temperature; great altitude; sudden changes of temperature; or abrupt transition from light to darkness, and *vice versâ;* long-continued movements in a circle: whatever, in fact, may tend to disturb the circulation of the blood in the brain, the lungs, or the heart.

The exemption, to a large extent, of the ox and sheep from Vertigo, due to disturbed circulation, while the horse and dog are very liable, may be owing to the presence in the former of the *rete mirabile*, which is so admirably disposed to prevent engorgement of the brain with blood. In order to perform its functions properly, this organ demands a large supply of blood, which is abundantly furnished by numerous large-sized arteries; while the uniform distribution and force of this fluid is pretty well ensured by the tortuosity and anastomosing arrangement of these vessels, in what has been designated the "circle of Willis," and their breaking up into minute capillaries in the *pia mater*. The bony channels through which some of the vessels pass, also, doubtless tends to limit their distension, and to equalise the blood pressure in the cranial cavity. A similar peculiarity is observed in the veins in this part, and which, forming large trunks or "sinuses," whose walls are composed of dense fibrous tissue, are almost incapable of distension or compression.

The brain is, therefore, to a great extent, almost incompressible, owing to this arrangement of its vessels, and its being placed within rigid bony walls.

The ox and sheep have, as has been just said, an additional safeguard against arterial congestion, in the wonderful plexus and interlacement of vessels at the base of the brain.

But it has been proved experimentally that, although the total volume of the contents of the cranium is probably nearly always the same, yet the quantity of blood in it is liable to variation with every beat of the heart and every act of respiration; and there can be no doubt that it also varies under many other circumstances, and that alternations of excessive and diminished pressure in the unyielding bony case, and which would prove most injurious to the functions of the brain, are provided for by the presence of the cerebro-spinal fluid in the cranium and spinal canal. This fluid, as has justly been observed, not only serves the office of fat in other regions, as a "packing" material, but by the readiness with which it can be displaced into the spinal canal from the cranial cavity, it provides the means by which undue pressure and insufficient supply of blood are equally prevented.

This is undoubtedly the case under normal circumstances; but from idiopathic, occasional, or other causes, this equability in the cerebral blood-pressure may be deranged, and then we may have either anæmia or congestion of the brain or its membranes, which will give rise to single or recurring attacks of giddiness. Alterations in the density of the blood or in the contractility of the arteries, or defects in the arrangement or pathological changes in the coats of the latter, may lead to an increase of pressure in a part or over the entire mass; derangement of the circulation in the respiratory, digestive, biliary, or other apparatus will also more or less influence the circulation in the brain; while an alteration in the quality of the blood will bring about disturbance in the nutrition of the organ.

We do not deny that, in some cases, an alteration in the tissue of the brain itself may be productive of Vertigo; but we confess that we are more inclined to look upon it as, in the majority of instances, depending upon either disturbed nutrition or deranged circulation. The symptoms go a long way to prove this.

The attack of Vertigo is usually sudden, and generally occurs while the animal is at work in harness, and not unfrequently

when it has been made to travel soon after feeding. It rarely indeed occurs in the saddle, or while the horse is in the stable. The severity of the attack varies. Sometimes it is limited to momentary vertigo—to sudden pulling up, shaking the head, turning it to one side, or throwing it up, as if gazing at the sky; stumbling or staggering, either against the next horse if in double harness, or against a wall or other prop; or it turns in a circle, hangs in its harness, looks anxious, perhaps retrogrades, and is soon covered by an abundant perspiration. If gently spoken to, kept quiet, held by the head and supported, the giddiness passes off in a few minutes without the animal falling; it soon assumes its wonted appearance, and proceeds on its journey without another seizure. In more severe cases, however, the horse staggers and falls, and remains lying unconscious for some time: the breathing being deep, the temperature of the body normal, and the pulse not much affected; while the eyes are insensible to light, and in some rare cases there may be disordered movements of the limbs *(Epileptic Vertigo)*. These are usually cases in which the attacks have been often repeated, as the malady is generally progressive. Indeed, the first indications of the commencement of this condition are usually so slight as to escape suspicion, and are limited to a peculiar side-shaking of the head, as if an insect were in one of the ears, with perhaps a slight deviation from the straight course; in a few seconds this has passed off, and the animal gives no further indication of giddiness. A curious feature in momentary vertigo, is its occurrence, in many cases, on particular roads, and nearly always at the same place. A horse of my own presented this peculiarity, being attacked nearly every time it arrived at a certain part of a road.

Abdominal vertigo, or "Stomach," "Grass," or "Mad Staggers," is another form of this affection, caused by indigestion, and in which there are bilious symptoms. In this form there is usually at first torpor or coma, the animal pressing forward against the wall of the stable, and reeling about, with indications of nausea. In some cases vertigo, or delirium of a furious kind, may ensue, from extreme congestion and effusion on or in the brain, or from sympathetic influences.

In many cases of Vertigo, recovery occurs; in others, curative treatment is impotent. These results depend upon the causes which give rise to the symptoms, their persistency, or the pathological changes they may produce. But into the treatment of these disorders we need not enter, as this will necessarily vary, not only with each case, but also with the stage at which we may find it.

Removal of the predisposing or exciting causes must, of course, be our object, when they can be ascertained. But in many cases of Vertigo, and especially those of a chronic nature, the prognosis will always be guarded, and must indeed be generally unfavourable. When it is due to improper feeding or bad stable management, then this should be amended; indeed, proper and seasonable feeding, working, harnessing, and good hygiene, must be the first consideration in every case.

The therapeutical indications will depend upon too great a variety of circumstances to allow us to touch upon them here.

PHYSIOLOGICAL AND THERAPEUTICAL NOTES ON CHLORAL HYDRATE.

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SINCE the introduction of chloral as a medicine by Liebreich, in August 1869, few remedies have met with such success, nor has there been any drug which has occupied the attention of physiologists and men of research so much, as chloral. Most men of science and of any note, who are connected with medicine, have fully investigated the physiological and therapeutical value of this drug: and I venture to presume that the numerous notes I have made respecting this popular remedy are worth recording in the pages of the *Veterinary Journal*, especially as it has been in use in veterinary practice for a few years. A detailed account as to its physiological, chemical, and therapeutical action may therefore be of interest to the readers of the *Journal*.

Chloral hydrate is a very volatile crystalline solid, possessed of a hot burning taste, insoluble in cold chloroform, but very soluble in water and alcohol. It occurs generally as transparent

colourless tablets, but sometimes in acicular, or even in rhomboid crystals,—the compound of chloral and alcohol. If an alkali be added to a solution of chloral hydrate, it breaks up into formic acid and chloroform, which, when water has been the solvent, at once separates in the form of oily drops.

Physiological Action. When given internally, in moderate doses, to man or other mammals, the most conspicuous sign, in the majority of instances, is quiet sleep, resembling natural sleep as nearly as possible. The patient can easily be aroused from the lighter degrees of this, waking nearly to full consciousness, but soon dropping off again when left quiet. The pulse is in this degree of action not altered, or is rendered slightly slower; the pupil is contracted, but becomes normal as soon as the subject is awakened; the respiration is deep, full, and regular. When larger quantities are given, the sleep is much heavier, and sometimes passes into profound coma; the respirations fall in number; the pulse becomes weak and slower, but may grow rapid and irregular if the dose has been toxic; the temperature is lowered; the muscular system is relaxed, and both sensibility and reflex action are diminished. If a poisonous dose has been given, all these symptoms just mentioned are increased, with coma, intense muscular relaxation, weak thready pulse, pupil contracted at first, afterwards dilated, and the animal sinks into death paralysed and anæsthetised.

The immediate cause of death is a paralytic arrest of respiration, and in many cases, there being a simultaneous arrest of the cardiac action, it is thought that fatal syncope may at times occur. At *post-mortem* examination, congestion of the meninges and substance of the brain and cord, and of the lungs, is commonly found. Dr. Richardson has noticed that the blood coagulates less firmly than when normal (*Medical Times and Gazette*, Sept. 4, 1870). The most conspicuous symptom produced by small doses of chloral, is sleep, and this may be attributed to its direct action upon the cerebrum. In most cases it is quiet, but it sometimes is restless sleep, and in man has even occasionally been wildly delirious; but it is considered that this latter condition may be attributed to impurities of the drug. Demarquay says that hyperæsthesia very commonly

follows the exhibition of small doses; Bouchut, Dieulafoy, and Krishaber (*American Journal of the Medical Sciences*, Jan. 1870), confirm this; whilst Liebreich and Lubbe deny it, and Hammarsten, who has noticed it, is inclined to think it apparent rather than real. This hyperæsthesia seemes to me most probable, and must be acknowledged; for Rafewsky, after making some very elaborate experiments, recognises it, and also states that there is in frogs a corresponding over-excitability of the reflex centres; he also noticed in rabbits a glowing heat borne without much complaint, while pinching would produce violent outcries. The experiments of Demarquay prove that, when chloral has been administered to animals, there is evident enlargement and engorgement of all their bloodvessels; and Rafewsky states that he has found sinking of the blood pressure in rabbits from small as well as large doses of the drug. In man, Bouchut discovered sphygmographic traces, which he thinks indicate a primary increased arterial tension. However, it seems to be an established fact, that both in man and mammals, by large doses of chloral the blood pressure is very much lessened, probably owing to vaso-motor paralysis, but in a greater degree to action of the drug on the heart.

An experiment of a large dose of chloral, ℥iv., on a horse, and which I think worth recording here, is quoted by Dr. Burness and Mr. F. J. Mavor, M.R.C.V.S., in their work, "The Specific Action of Drugs," p. 31:—

"At 11 o'clock ℥iv of chloral in water was administered to a horse; and almost as soon as swallowed, whilst his mouth was being washed out, he suddenly fell down insensible, sighing frequently and perspiring freely; the pupils were fully dilated, all the muscles relaxed, complete anæsthesia of the whole body. Twenty minutes after, the pulse was 50°, feeble—in fact, almost imperceptible. At 11.30 the pupils were smaller than normal, the pulse was 48°, and stronger, the horse was coughing at intervals, breathing was heavy, quick and spasmodic. Shortly after he sank into a quiet sleep; at 12 o'clock the breathing was short and quick, and the anæsthesia was passing away. At 12.30 he was awake, coughed, and discharged a quantity of thick white creamy froth through the nostrils; also passed dung. At

12.35 attempted to rise, but had little or no power over his legs; sighing still at intervals. At 12.45 again attempted to rise, but failed. At 1 p.m. pupils dilated, sleeping; breathing slow and heavy, relaxation of sphincters of bladder and rectum, passing urine and dung, skin cold. At 1.20 urine dribbling away, dung at anal opening, but no power to expel. At 3 p.m. restless, disposed to feed, shivering. At 4 p.m. he was on his feet, eating and moving about, still shivering, coat staring; at 6.20 still the same. Next morning he was suffering from Bronchitis, mucous discharge from nostril, and moist mucous râles distinctly heard all over chest: he was quite recovered in a few days. Now it is evident from the symptoms in the above case, that the horse was suffering from chloroform; the chloral being mixed with a large quantity of water, was at once absorbed, and decomposed into chloroform and formic acid. Moreover, the smell of chloroform was perceptible in the stable, and the symptoms were parallel to those which would be produced by an over-dose of chloroform."

Dr. Burness and Mr. Mavor, not having carried their experiment further, the chloroform theory is open to doubt; and I should like to see some one make a better research regarding this very important point. It is in their favour, however, to mention that the conversion of chloral by alkalies in solution into chloroform and formic acid first suggested its use in medicine to Liebreich; and the theory that its action is really due to chloroform generated by the alkalinity of the blood has been endorsed by Personne and other writers. The evidence by which this theory is to be discarded or acknowledged is twofold in its character—*i.e.*, chemical and physiological. Personne (*Journal de Pharmacie et de Chimie*, 1870), by distilling the blood of animals poisoned by chloral at 40° C.—a temperature decidedly above that of the body—obtained chloroform; and his experiments have been confirmed by Pellogio and other chemists; so that the chloroform theory has to a great extent been proved. They are, however, open to doubt; for it is very possible that the chloroform may be formed during the distillation, owing to the comparatively high heat employed. This evidence must therefore be left an open question, especially as Hammarsten

has found that if chloral be mixed with fresh blood, and streams of carbonic acid be forced through it, no chloroform can be detected; but if the mixture be heated, the latter can be obtained in abundance.

Hammarsten, carrying his experiment further, examined the expired air and a portion of the blood of dogs poisoned by chloral, and could not detect chloroform; although when a clyster of the latter substance was administered, it could be detected in a few minutes, in both the blood and the breath. Now, in non-chloralized animals to which similar enemata were given, the chloroform could be detected in the breath before anæsthesia was induced.

Rafewsky has confirmed these beautiful experiments, as has also Amory (*New York Medical Journal*, 1870); so that it may be considered settled that chloral mixed with blood at ordinary temperatures remains unaltered, and that, in the most severe poisoning, no chloroform can be detected either in the blood or the expired air. It would thus prove that the physiological evidence is in strict accord with the chemical facts, for the symptoms induced by chloral are only analogous to those caused by chloroform, not identical; and, as any one may observe, if proportionate doses of chloral and chloroform be given to animals, the sleep induced by the former is not only much more prolonged, but also more intense. Further, the anæsthesia of chloroform is much more intense than that of chloral. Another point to be observed is, that after chloroform poisoning, biliary colouring matters appear in the urine, whilst after chloral poisoning none can be discovered; and that if choral be added to blood outside of the body, no destruction of the red discs occurs.

The physiological action of chloral may be briefly summarized thus:—It acts as a most powerful and certain hypnotic upon the cerebrum, in large doses; it acts as an intense depressent upon the centres at the base of the brain, and upon the spinal cord, causing slowing and weakness of the heart's action, probably vaso-motor paralysis, slowness of the respiration, and muscular weakness, with a certain amount of anæsthesia; in fatal doses causing death generally by arresting—through

paralysis of the nerve centres,—first respiration, and finally the heart in diastole.

Therapeutics.—In veterinary practice, chloral hydrate can be administered with advantage as a hypnotic, and, on the whole, I might say chloral is unequalled as a sedative. In the sleepnessness occuring at times during convalescence from acute disease, it will be found very efficacious. In the early stages of fevers it will be found of some use. It can also be administered in moderate doses, with marked effect, to relax spasm. In Tetanus it is claimed that chloral is *the* remedy; and I believe there can be no doubt of this, as it constitutes the whole or major part of the treatment of some eminent practitioners. In the chorea of dogs, it has been used with very great advantage; especially when the disease has become acute, in which speedy death is threatened from the incessant and violent movements. Given in combination with bromide of potassium, it acts like a charm in the last-mentioned disease; as it will quiet the patient, check the involuntary movements, and produce a most refreshing sleep.

CANINE DISTEMPER.*

BY J. W. HILL, M.R.C.V.S., WOLVERHAMPTON.

IN responding to the call I was honoured with by our President, to bring a paper before this meeting of the Midland Counties Veterinary Medical Association, I did so with a considerable amount of diffidence; inasmuch as I felt at a loss what subject to introduce to your notice, and when I had selected it, whether it would be interesting enough to arrest your attention. After some little consideration, I decided that matter relating to animals rarely discussed at these gatherings would be possibly an agreeable change from the ordinary essays brought forward, and I trusted of sufficient importance to meet your approval. With these thoughts I chose for my subject "Distemper in the Dog"—a disease of common occurrence, well known to veterinarians, and a plague to the majority of dog-owners.

* Read at the meeting of the Midland Counties Veterinary Medical Association, on August 24.

Probably no disease to which our canine friends are subject has received less attention *scientifically*, or caused greater diversity of opinion when it has received that attention, than the one termed "Distemper." Every gamekeeper, dog-breaker, or kennel-man has his particular recipe; most druggists possess some wonderful prescription; while sporting and other papers abound in advertisements of specifics and nostrums.

In the course of this paper, it is not my intention to lay down any fixed rule of treatment adapted to every case, but only for those in which the disease assumes the forms herein described, and from which I have derived the greatest benefit.

Nature, in many instances, works her own cure; while numerous methods of treatment produce mischief, and result in death.

Distemper may be described as a Catarrhal Fever, generally affecting the mucous membranes of the head, air-passages, and alimentary tract, in which frequently the nervous system becomes involved,—hence Distemper fits and local or general paralysis. It is a highly contagious disease, though oftentimes it is undoubtedly self-generated. Age is no preventive: at any period of life dogs are liable to become infected. But Mr. Fleming correctly observes, "It is more particularly a disease of youth, and is much more frequent and fatal among highly-bred, pampered animals, than those which live in a less artificial manner, and whose constitution is less modified by breeding and rearing."* Neither does one attack render a dog secure from a second; but in the latter it is contracted, I believe, invariably by contagion alone.

Distemper is not, as many persons suppose, a necessary disease, as numbers of dogs pass through life without ever becoming the subject of it. The fact of the malady being unknown in this country prior to the seventeenth century (*query*) strongly supports this view, as dogs then were probably as numerous as now, though not perhaps so mixed in breed.

In all cases it is ushered in with catarrhal symptoms, and these, as the malady proceeds, may become complicated with Pneumonia, Jaundice, Enteric Disease, Epilepsy, Chorea, or

* "Veterinary Sanitary Science and Police," vol. ii. p. 290.

Paralysis: though the two latter are as a rule sequels, I have occasionally seen them exist in conjunction with Distemper.

Causes.—These may be enumerated under the following heads:—Contagion, badly drained and ill-ventilated kennels (which to young dogs are especially fruitful causes of Distemper), exposure to damp and cold, insufficient feeding and poor food, over-feeding (particularly with flesh), and too little exercise.

Worms have been mentioned by some authors as another cause, and certainly they are frequently present in this disease; yet it must be borne in mind that they are equally so in dogs that are over or have never had Distemper. That their presence bodes no good to the animal while under the influence of the infection (or indeed at any time), can be readily understood, but especially, I should say, during the existence of Distemper: because the mucous membranes are then in an irritable condition, and these pests are not likely to reduce, but to increase that irritation, and produce—what is to be dreaded at all times, but doubly so in Distemper—a fit, the condition of the patient then warranting it. (I qualify it thus, because there are circumstances under which it would be unwise to administer the drugs usually given for this purpose.) The sooner the worms are expelled the better. As a vermifuge, the areca nut is least harmful; turpentine, at other times most valuable, must be used with great caution here.

Teething has been affirmed as another cause of this disease, but here again the assumption has probably taken place from dogs at that period of their lives being most liable to Distemper. An irritability of system and degree of inflammatory fever is undoubtedly established at that crisis; and such a condition may render the subject more liable to contract the disease, if brought in contact with it; but certainly not otherwise, any more than the same process can produce in human beings Measles, Chicken-pox, or Scarlet Fever.

The period of incubation is usually from one to three weeks, and the duration of the malady may be a week, or two or three months.

Symptoms.—The premonitory ones are: A heavy sleepy look about the face, nose hot and dry, a disinclination for food,

shivering, arched back, and more or less lassitude. In from two to three days a watery discharge takes place from the eyes and nose, the animal frequently sneezes, and this is followed by coughing, retching, and vomiting. The discharge from the eyes and nose soon becomes purulent, the eyelids are inflamed and swollen, the breathing is accelerated, the inclination for warmth more evident, and the prostration greater.

Prompt and judicious treatment, in a case of this kind, will generally be attended with success. Immediately the first of the foregoing symptoms are observed, the patient should be placed in a dry, but not too warm atmosphere, and the habitation—if in the kennel—well drained and disinfected.

With regard to medicinal agents, a mild emetic is at the onset advisable, as—

Antim. Tart. . . .	1—3 grains.

or

Antim. Tart.) Calomel)	*a a.* 1 grain.

A good household emetic is a teaspoonful each of mustard and salt in a little warm water: its action is speedy and safe, and it fulfils all the purposes required.

The favourite draught of syrup of buckthorn and castor oil, is not always applicable; but in the majority of cases of this kind it is beneficial, and should follow the emetic within a short time. When the catarrhal symptoms advance, and coughing takes place, I recommend the insertion of a small seton in front of the chest; this is to be daily dressed with mild digestive ointment, and not removed so long as bronchial irritation is present. Stimulants, combined with tonics, are also required at this period. Either of the following forms may be used:—

Spts. Æther Nit.	4 drachms.
Tinct. Gentian Co.	4 „
Aqua Menth.	1½ ounce.

A teaspoonful three times a day for a terrier; double the quantity for a large dog.

or

Port Wine	a teaspoonful.
Quinine Sulph. . . .	1 grain.

With the same directions.

The food should be light and nutritious—as milk, mutton broth, or beef tea deprived of its fat. If the patient refuses to take anything, meat nearly raw, chopped small, and made into balls and administered, will afford the best means of support. When the catarrhal symptoms have subsided and recovery commences, cod liver oil and iron materially assists in hastening the process. The dose is a teaspoonful of the former and five mimims of the latter for a small dog, double the quantity for a large one, twice a day. The natural diet to be gradually introduced—as strength returns. I must not omit to observe that it is highly important that the discharge from the eyes and nose should be frequently and carefully removed, especially from the former; otherwise ulceration of the eyelids, conjunctiva, and even the eye itself, is apt to take place, and not unfrequently results in total loss of vision. A daily application of some mild astringent —as five grains of alum to one ounce of water—will assist in preventing ulceration—by counteracting the relaxed condition of the mucous membrane and secretory glands.

If, however, ulcers have already formed, warm fomentations with milk and water, the avoidance of glare (as the sympathetic inflammation is often very great and the parts peculiarly sensitive to light), and the use of either of the following lotions may with benefit be adopted:

1. Tinct. Myrrh Sim.	20 drops.
Sol. Alumen	1 ounce.
Aqua Distil.	10 ounces.
or	
2. Zinc Sulph. or Plumbi Acetat. . . .	1 scruple.
Aqua Distil.	10 ounces.
or	
3. Nitrate of Silver	4 grains.
Aqua	1 ounce.

The second and third forms are more applicable when fungoid growths succeed the ulcerative process.

When the eyes remain weak after recovery from Distemper, with opacity of vision, a seton inserted at the back of the ears, and daily stimulated, is of great benefit. The time for its removal is to be regulated according to the condition of the

eyes; here the third form of lotion is useful. Frequently small circular depressions present themselves on the cornea, which, if neglected, assume an ulcerative condition, and extend to the anterior chamber of the eye. In such cases, I have found a little calomel daily blown on the surface attended with the best success.

I will now proceed to speak of Distemper in some of its more complicated forms.

It not unfrequently happens—particularly in house pets, whose diminutive bodies are foolishly and unnaturally clothed in miniature horse apparel—from their susceptibility to cold, or from not being observed in time, that the catarrhal symptoms increase suddenly in intensity, Bronchitis sets in, and speedily upon that Pneumonia. The hot, rapid, gasping breath, and unmistakable mucous rattle of the former, with, on auscultation, the rasping crepitating *râle* in the latter, the sunken eye, jerking, increased heart-beats, haggard face, dilated nostrils, and mouth drawn back at the angles, soon inform the practical man where the mischief is located.

A seton, if not already inserted, should be done so immediately in front of the chest, and action excited as quickly as possible. Turpentine is, I think, the best agent for this purpose.

Hot linseed-meal poultices, applied to the sides, are exceedingly beneficial. They should be covered by a handkerchief brought under the girth, and tied over the back, *but not too tightly, so as to compress the walls of the chest.* These should be repeatedly renewed, and succeeded, if the animal is not relieved in six hours, by mustard cataplasma.

With regard to internal remedies, diffusible stimulants are best adapted to such cases. I recommend the administration, to a small dog, of a teaspoonful of brandy and water (equal parts), with two drops of chlorodyne, every hour; double the quantity for a full-sized terrier, treble for a large dog.

Beef tea, mutton broth, or milk in which plain biscuit or bread has been soaked and broken down, should be given with a spoon, unless voluntarily taken, two or three times during the day.

If there appears danger of suffocation, emetics may be administered until vomiting is induced. The ipecacuanha wine in some cases answers well—dose from fifteen to thirty drops in a little warm water.

When the acute symptoms have subsided—which the breathing becoming less laboured and panting, the heart's action steadier, pulse less frequent and softer, and an occasionally deep-drawn sigh will denote—the brandy may be given at longer intervals, the chlorodyne suspended, and the tincture of iron substituted, in five, ten, or fifteen drops, in proportion to the size of the dog. The body must be kept warm, but fresh air is throughout absolutely necessary; therefore ample ventilation, without draught, should be allowed. This is a point I am most particular upon. Often and often have I found my little patient, through the mistaken kindness of its fair owner, smothered in shawls before a hot fire, and almost totally deprived of one of the great essentials to recovery—the inhalation of fresh and cool air. As veterinarians, we are by this time all thoroughly aware of the importance of this great principle in the treatment of catarrhal diseases in the lower animals; and in proportion to that knowledge, so has our success been greater; and diseases of this type are now few and far between, whereas they were once rife and fatal.

As the symptoms continue to abate, the nourishment of the diet can be increased, and cod liver oil may be given as previously described.

When Distemper becomes associated with Jaundice, it is commonly called the "Yellows," and treated by kennel-men and quacks as a distinct disease; though I need hardly tell you that it is but the result of general derangement of the system, consequent on improperly treated or neglected Distemper.

The symptoms are a yellow tinge of the eyes, visible mucous membranes, and thin parts of the integument—as inside the thighs, fore-arms and ears, and that covering the abdomen; pain on pressure over the region of the liver, and sometimes enlargement, with hardness; the fæces pale and hard, or soft and greenish, and mingled with mucus; the urine high-coloured, hot, and occasionally turbid.

The patient may or may not exhibit catarrhal symptoms with Jaundice. In Distemper it most frequently follows the former.

A mild dose of aloes and calomel is generally at first advisable, but in the administration of this we must be guided by the other symptoms. If the catarrh is still present, or the bowels irritable, aloes must certainly be avoided. Five-grain doses of Hydrarg. *cum* creta may be given daily to a medium-sized dog; and if this is found to be unattended with benefit, sulphurous acid—from three to ten drops in a little cold water—may be tried, and is frequently given with success. The addition of quinine is often useful.

A mustard poultice applied over the region of the liver, in severe cases, affords considerable relief, and at the onset is of especial service.

The diet should be plain and light; milk, with one-third its quantity of lime-water, is most suitable until an improvement in the symptoms is observed.

When the disease extends to the bowels—which, in neglected cases of Distemper, or even in those most assiduously attended, it frequently does—a violent form of diarrhœa or dysentery sets in. The fæces are dark, streaked with blood, and offensive; the patient rapidly wastes, has a sickening odour, and speedily dies, often even under the most energetic and judicious treatment. A mild dose of oil (linseed or salad) is generally at first advisable, and in three hours this is best followed up with antacids and astringents:—

1.	Sodæ Bicarb.	10 grains.
	Catechu Pulv.	10 „
	Opii Pulv.	2 „
2.	Cupri Sulph. . . .	5 to 10 „
	Opii Pulv.	2 „
3.	Tannic Acid	5 „
	Opii Pulv.	2 „
	Zingib.	10 „

In severe cases, the last prescription (No. 3) is the most effectual. Should the purging continue, and symptoms of pain be manifested, hot linseed-meal poultices applied to the abdomen

afford relief, and materially assist in checking Enteritis. Starch enemas are likewise serviceable.

The diet should consist of strong beef tea, in which isinglass or gum arabic has been dissolved in proportions to make it sufficiently mucilaginous to shield the living membrane of the stomach and intestines.

With regard to the so-called "Distemper fits," it is almost needless to remark that they are always a dangerous sign, being seldom limited to one attack. Sometimes they appear as the forerunner of Distemper, but more frequently as an accompaniment, and when the patient is low and wasted.

Immediately symptoms of cerebral disturbance are observed, a seton should be inserted in the occipital region, and action excited as quickly as possible. Let the animal freely breathe fresh air; administer brandy and water; and if diarrhœa is still present, suspend the opium, but continue the antacids and astringents, and give the brandy with beaten egg or other mucilage. During the seizure, neat brandy may be rubbed on the gums, and ammonia applied to the nostrils. The food should be nutritious, and all other means adopted which are calculated to impart tone to the system.

In protracted cases of Distemper, when the system as it were has been taxed to the utmost, and the patient reduced almost to the lowest ebb of existence, a cuticular eruption makes its appearance. This generally, in the first instance, assumes a pustular form, and these pustules in the course of a few days break, and leave by their exudation a crust or scab. Either the whole or a portion of the body only may be involved. I have seen a dog literally naked, with the exception of the head, ears, and feet.

This condition is not unfrequently mistaken by the would-be "knowing ones" for Mange, and treated as such.*

* I well remember a case in point which came under my own observation—the subject being a Skye terrier. The case, when first brought to me, was one of Distemper associated with Pneumonia (the animal being thought consumptive); later on dysentery set in. Several times the animal was on the verge of death, and it was only by my persuasion that he was allowed to continue under treatment. Ultimately he took a turn for the better, and almost simultaneously the eruption described broke out; the stench emitted after it made its appearance was simply abominable. In a

There is, however, no analogy between the two. The Distemper eruption and loss of coat is simply owing to suspension of the secretions necessary to the growth and support of the hair; or if not actual suspension of these secretions, then from such an exceedingly low state of vitality of the surface of the body that life and health in the appendages of certain parts cannot be maintained.

Occasionally this eruptive stage is the forerunner of a return to health, but much more frequently it is a precursor of a fatal issue.

At this period of the disease, tonics are especially indicated, and everything in the shape of diet, exercise, cleanliness, etc., calculated to promote vigour.

When Chorea or Paralysis exist with Distemper, remedies specially adapted to either must be used in addition to, or in conjunction with, the Distemper treatment. Strychnine or nux vomica is undoubtedly the most effectual restorative agent in such cases.

It would be superfluous on my part, in the presence of the scientific body of gentlemen here assembled, were I to hint at the care required in the administration of this drug. I will merely observe, for the benefit of non-professional persons, that cases have fallen under my notice in which death had resulted from irregularity in the time of giving such medicine, and more particularly where the dose had been for some time gradually

few days every vestige of hair, with the exception of that on the head, ears, and lower part of the legs, came off. He continued in this state for several weeks, the skin being perfectly clean and whole, but very glazed. In every other respect he improved daily, and gained flesh. The owner and another gentleman maintained that the dog had contracted Mange; nor could I convince them to the contrary. In vain I argued the difference of symptoms, and that as the system gained tone so would the patient regain his coat. But no: the dog was removed, and placed out to nurse in the hands of a dog-breaker—he also being of opinion it was Mange; and this worthy individual, according to his own account, brought away that which the patient never in my possession possessed—*a hatful of worms*. Some time afterwards I met the gentleman to whom the animal belonged, and was asked if I recognized the dog he had with him. Certainly, as my old patient, which he proved to be, I did not; for he was clothed in an entirely new coat, and of an entirely different colour—dark, nearly black, stubbly hair having taken the place of the original silver-grey—the result, in all probability, of the dressing applied to the sensitive and weak skin. In this instance the breaker claimed the cure which nature had wrought.

increased until it had reached more than treble the primary quantity. Forgotten for some hours, or it may be a day, and then given perhaps fasting, a fatal issue is pretty nearly certain to follow. When there is any difficulty in administering the medicine in the form of pills, the liquor strychnine may be conveniently substituted.

Local remedies in Chorea and Paralysis are often very beneficial. I have found setons exceedingly valuable. If the convulsive movements of the former, or the numbness of the latter, are confined to the hind parts, the seton requires inserting across the loins; if general, at the back of the head and across the loins. Counter-irritation along the spine is also serviceable, and galvanism is occasionally useful.

Though, in principle, the hot bath, from its relaxing properties, may appear wrong, it is nevertheless, in Chorea, sometimes attended with good results. It certainly affords relief when the convulsive twitchings are excessive, and so far I have observed no after evil from its use. I should not advise its adoption when Distemper also existed. Quietude, except when the patient is necessarily disturbed, is very essential; and attention to the bed being dry, and the excretions regular, are also matters of importance in Chorea and paralytic affections.

When abatement of the twitchings, with returning strength, is observed, a favourable issue may be expected; but it is advisable not to discontinue the medicine so long as any nervous complication remains; afterwards it should be gradually, not suddenly, suspended.

As soon as the patient is able to walk, a short exercise each day may be given with benefit. The fresh air acts as a tonic, new scenery and objects divert the mind, while exercise encourages the natural habits and functions of the animal.

Tincture of iron and cod liver oil is advisable after the disuse of the strychnine, until recovery is complete. The diet throughout should be nourishing and digestible, and forcibly administered if the patient refuse to take it. Constipation, which is frequently present in Chorea and Paralysis, is best relieved by enemas.

With regard to preventive measures for Distemper, I shall not at this late hour more than observe that due attention to

hygienics is the only and best preventive. Vaccination has been extolled and condemned,—condemned justly, inasmuch as there is not a shadow of analogy between Canine Distemper and Small-pox.

Lately, efforts have been made, though unsuccessfully, to establish an identity between Distemper and human Typhoid Fever: for, as Professor Axe pertinently remarks, "Did Distemper in the dog possess the property of communicating Typhoid Fever to man, it is difficult to understand how myself and others have so long escaped infection. During the past twelve years I have examined large numbers of distempered dogs immediately after death, and thus exposed myself to the emanations from every secretion and excretion of the body; but in no case have I suffered the least constitutional disturbance." This illustration, it may be argued, is worthless in itself, and is capable of explanation on the ground of insusceptibility; but the same remarks apply to scores of others who have been exposed from time to time in a similar manner. In regard to the propagation of the Typhoid contagium, Dr. Budd says: "If the poison from which Typhoid Fever springs were capable of being bred elsewhere than in the human body, it would surely be in the bodies of animals which are made of flesh and blood like ourselves, and from whose substance we draw sustenance for our own. And yet it appears to be almost certain that this is not the case. In the most virulent outbreaks of Typhoid Fever, there is no evidence that the domestic animals which gather round the fever-stricken dwellings ever take the disease. At Cheffcombe, while nearly all the human inmates of the infected homestead were laid low by the poison, the dogs and cats which belonged to the house, and the poultry, pigs, horses, and cattle which thronged the yard, continued to enjoy perfect health. Yet the pond from which the latter drank was being continually polluted by a drain which received the whole bulk of the intestinal discharges from the Fever patients!* The statement of 'H. H.' that the symptoms of Distemper in the dog and Typhoid Fever in man are 'alike,' is true only so far as refers to the febrile state. The specific phenomena of the latter most surely find no

* This is strong evidence: sufficiently so to be conclusive.—J. W. H.

counterpart in the symptomatology of the former. It is only in the continued type of the Fever that any identity can really be said to exist. If we examine the main features of the two affections, we find at once a broad and unmistakable difference in their clinical and pathological equivalents," etc., etc.

INTUSSUSCEPTION IN AN ELEPHANT.

BY B. A. W. POWELL, M.R.C.V.S., 3RD REGIMENT MADRAS LIGHT CAVALRY, SAUGOR, CENTRAL PROVINCES, INDIA.

ON the march from Delhi to Saugor, Central Provinces, my present station, at Camp Tolbait, a male commissariat elephant was reported to be unwell, and my attendance was requested. On arrival, I found the animal in slight pain, indicated by his general uneasiness; pulse 57 and full; extremities cold; urine scanty, but very high-coloured; fæces soft and constantly voided (Mr. M——, the commissariat sergeant, thought this latter symptom was due to the creature being in a state the natives term *Nāgū*, which is produced by their eating large quantities of a particular kind of earth, and which acts as an anthelmintic); off feed. The following morning I found all the symptoms much increased in intensity; pulse (taken at a branch of the carotid artery, which passes over the internal surface of the ear, and may be detected by the naked eye) 70; pain greater, evinced by the animal resting one hind-foot on the opposite leg, and *vice versâ*, by his passing the trunk into his mouth and gnawing it, and by his pertinacity in refusing to obey his mahout.

Diagnosis.—Enteritis; at which opinion the mahouts and Sergeant M—— appeared to be very much amused.

Treatment.—Foment abdomen continuously, and apply Ol. Terebinthinæ ℥ij to same every hour. As the patient entirely refused to eat any food, or drink water, medicinal agents internally were, of course, out of the question. Injection *per rectum* would have been only waste of medicine, as the stools were so frequent.

The following day, at 3 a.m., this young (36 years) and previously very healthy animal died.

The *autopsy* revealed an intussception for a distance of 22½ inches, of that portion of the small intestines which commences at the pyloric orifice of the stomach: the whole was one mass of dark congestion, and the gut (duodenum), instead of being a hollow cylinder, was completely filled with dense fibrin, which appeared to be undergoing organization. The whole of the other organs of the body were healthy.

In conclusion, I may remark that the large intestines were positively loaded with two kinds of parasites: one the *Musuri*, and the other the *Soortie;* at least, such are the names they are called by the natives of Bengal. The *Soortie* are long (1 to 1¾ inch) transparent, thread-like worms, and abounded in the ingesta. The *Musuri* are small, rhomboidal-shaped, semi-transparent bodies, about ¼ inch in diameter, and adhered in clusters of from twenty-five to fifty to the lining or mucous membrane of the intestine.

Intussusception is rather a rare disease amongst the *Proboscideæ* class in this country; and it is for this reason I have sent a brief outline of the case, which may interest some members of our profession.

DOUBLE SCROTAL HERNIÆ.

BY R. MOORE, M.R.C.V.S., SHEFFIELD.

THE subject of this communication was a valuable half-bred colt, suffering from Double Scrotal Herniæ—a very uncommon complication.

The case had alarmed both professional and unprofessional men, who thought operation impracticable. Mr. Cartledge was requested to see the colt, which was some distance from here; and he, with full knowledge of the difficulties of the case, undertook to operate.

The colt was brought to Sheffield for the purpose. As to the mode of operation, it was thought the whole of the scrotum and its contents had better be enclosed in a single clam, and

allowed to slough. The impression was, that if two clams were used, there would be a difficulty in keeping them *in situ*, also in cutting off the required extent of integument.

The colt was cast in the usual way, and the bowels returned into the abdomen. The testicles were placed in position, and a strong steel clam—fastening by a joint at one end and a screw at the other—was placed round the whole, including both cords, tunic, and scrotum. Care was taken that the clam was placed as near the rings, and embracing as much integument, as possible. The screw was then made tight, and the colt allowed to rise.

The clam was frequently tightened by means of the screw, and was taken off at the end of a fortnight. That portion of the slough which had not separated was removed; the parts were afterwards kept clean, and digestive ointment applied occasionally. During the whole of the sloughing process the colt was evidently not much disturbed, the swelling and stiffness being trifling. He was discharged from hospital a month after the operation, in all respects healthy and well.

DISPLACEMENT OF THE GASTROCNEMII TENDONS IN A YOUNG BULL.

BY THE SAME.

ANOTHER uncommon case I came across a little time ago, in a young bull—ten months old,—which I was told was suffering from "Rheumatics" in the hind-legs, and unable to stand. Upon examination I found that the Gastrocnemii tendons had slipped off both hocks, carrying with them the summits of both *ossa calci*, which had not become thoroughly united. The cause was not known, as the bull had not been out of his box.

I concluded that he must have had a slip or some such accident. He was very large for his age, and no doubt the formation of bone had been too rapid to be perfect, and the muscular power greater than the osseous.

THE PREVENTIVE AND CURATIVE MEASURES FOR ANTHRAX FEVER.

BY E. DECROIX, PRINCIPAL VETERINARY SURGEON, FRENCH ARMY.

THE celebrated chemist, Dumas, has discovered that boracic acid and the borates of soda and potass arrest chemical fermentations. Starting with this idea, Giovanni Polli, an Italian professor, in a work which has been recently translated into French by Doctor Pietra Santa, has made known a series of experiments from which it resulted that the borates are anti-zymotic, anti-putrescent, anti-fermentescible, etc., agents. It is therefore logical and rational to employ them against alterations in the blood.

Quite lately I have been in a position to try the borate of soda in Anthrax Fever (Charbon), and I believe it will be useful to direct attention to the results obtained.

From the 20th to the 28th June, six horses among fifty were attacked with Essential or Symptomatic Anthrax: of these three had died, and the remaining three "were in an almost desperate state."

The ordinary treatment, employed energetically and with intelligence and promptitude, did not prove satisfactory, as is usual with such a malady. In presence of this insuccess, I prescribed, as an internal *curative* agent, the borate of soda, in dose of one hundred grammes daily, dissolved in water and administered as a drench. The borate of soda having but little taste, was taken without any trouble by the patients; all the stimulants, tonics, anti-putrescents, etc., generally employed, were suppressed. The external revulsives and cauterisation of the anthracoid tumours were continued. As a *preventive* measure I prescribed twenty grammes of the borate (thirty to forty grammes might be given) for each horse daily. I also suggested that the stables should be evacuated, but this advice was not followed.

The prescriptions were made on the 28th of June, at nine o'clock in the morning. On the 29th, at half-past ten, one of the three patients succumbed; while another horse, which had

been admitted into the infirmary for the same disease, commenced to have anthracoid engorgement of the hocks. At this period the medicament had not had time to act on these two animals. Another new case occurred on the 30th, while the preventive medication had not been very regularly followed out until the previous day. With regard to the mortality, this had completely ceased; and the two horses which were so ill that their case was supposed to be almost desperate, nevertheless recovered. The horse which was admitted on June 30th was not altogether out of danger on July 24th. The use of the preventive drenches was continued until July 16th.

What conclusion is to be derived from these facts? Did the enzoöty cease because it ought to cease spontaneously? Would the animals so seriously affected have been cured by the ordinary means? Or had the borate of soda been the principal cause of the success obtained? I shall not attempt to solve these questions by more or less learned disquisitions.

But I beg of my *confrères*, civil and military, who may have to deal with anthracoid affections, to give the medication I have indicated a trial, and inform me of the results, positive or negative, of their observations—results which I shall hasten to publish.*

Secondary Question.—Much having been said, for several years, as to whether bacteria and bacteridæ are or are not inherent in anthracoid affections, I first examined, microscopically, blood from the jugular and from the tumours of the most diseased animals, but without finding any traces of bacteridæ. I afterwards examined, at three o'clock in the afternoon, blood taken from the heart, liver, and tumefaction on the throat of the horse which died on the 29th, but with no better success.

I then began to suspect my method of seeking for these very minute organisms, and therefore had recourse to the micrographers of the College de France, where I found myself at half-past four, and of the Sorbonne, where I was at five o'clock. Ranvier and P. Bert's assistants, to whom I owe sincere thanks, examined the blood I brought to them in a phial, but were also unable to discover bacteridæ. Bert's assistant

* M. Decroix's address is 3, Rue de Champagny, Paris.

inoculated a guineapig with this blood; the creature died twenty hours afterwards—as happens with Anthrax blood. The blood of the guineapig did not contain any bacteria.

THE ANATOMY AND PHYSIOLOGY OF THE KERATOGENOUS MEMBRANE OF THE HORSE'S FOOT.

BY DR. MOELLER.

(Continued from page 196.*)*

II. SUBCUTIS.

THE keratogenous membrane is only provided with a subcutis in certain portions of its extent; it offers many variations in its anatomical structure from the subcutis proper. In a modified form it is to be found in the following places:—

1. Under the perioplic ring and coronary cushion. Here it forms the immediate continuation of that portion of the true subcutis which belongs to the cutis covering the two first phalanges. It takes a coarser fibrous texture as soon as it reaches the perioplic ring. The fibres of connective tissue unite and form thick bundles, which constitute a coarse network and cross each other in every direction. Numerous elastic fibres are also present. The difference in this subcutis from that of the subcutis proper, becomes more and more marked as we approach the coronary cushion; so that in this locality it has almost entirely lost its loose structure, and has assumed a coarse net-like character. The cellular character has almost entirely disappeared; while the elastic tissue predominates. The numerous vessels—viz., veins (superficial venous network of the coronet)—are imbedded in the connective tissue situated beneath the coronary cushion.

2. Under the fleshy wall or podophyllous tissue, a subcutis is only to be found upon the superior part, and in those places where the cartilages form the foundation for the fleshy wall; further on is the anterior (or toe) portion, to an extent corresponding to the point of insertion of the tendon of the *extensor digitorum communis*. It is absent in the remaining and greater portion of the fleshy wall. In its histological structure, it offers no essential variations from that previously described. Here

also is to be found the non-cellular, coarse-meshed, and dense arrangement of the fibres. The subcutis of the fleshy wall is the immediate continuation of that of the coronary cushion. In its meshes are also to be seen veins in great numbers.

3. The "Strahlpolster," or pyramidal body, including the cushions, or "frog-cushion," forms a continuation of the *subcutis proprius*, upon the inferior (heel) portion of the foot; but it offers many essential modifications. The subcutis is here interpolated in the form of a flattened and pointed wedge, between the "fleshy frog" (velvety tissue), and the tendon of the *flexor digitorum profundas, s. perforans.* The basis of this wedge forms the so-called "Ballen," or plantar and volar cushions.

In the frog-cushion, elastic tissue predominates; the remainder is composed of connective tissue, which forms a dense coarse-meshed network. The cellular elements are much in the minority; this is especially true of the anterior portion—the point of the pyramid. The fibres of connective and elastic tissue in the frog-cushion are united in flat-like bundles, which, combined, form a sort of fascia, that runs in the horizontal direction of the velvety tissue—"fleshy frog." Some of those which are microscopically visible have received from the anatomists the name of "Huffesselbeinband," or "proper tunic of the plantar cushion" (Chauveau's "Anatomy," by Fleming, p. 802). Other fasciæ of inferior strength are also to be seen taking the same direction. This arrangement is, without doubt, of most essential importance when considering the inflammatory processes which take place on the frog-cushion, the velvety tissue covering it, the tendon of the "perforans," and the naviculo-pedal articulation.

The so-called "Glandulæ sudoriparæ" of the frog-cushion are, according to Franck, present here.* The superior portion of the frog-cushion unites with the flexor tendons, and presents a softer and looser structure; yet here is also to be observed a union into dense fibrous masses, resembling to some degree fasciæ. In the superior and posterior portion of the foot, the frog-cushion gradually passes into the subcutis of the pastern, and presents a rich deposit of adipose tissue. On both sides, where the tissue forms the foundation of the plantar and volar

* Franck, *Deutsche Zeitschrift für Thiermedicin*, vol. i.

cushions, it immediately merges into the connective tissue, which lies under the coronary cushion, and the podophyllous tissue, as well as that upon the lateral and median cartilages of the *os pedis*. These cartilages generally penetrate into the substance of the frog-cushion.

Apart from their points of union with the *os pedis*, the cartilages are entirely imbedded in a mass of connective tissue; this is, however, rich in elastic fibres. Upon the lateral aspects, the cartilages are covered by the subcutis which lies under the coronary cushion and perioplic ring; the connective tissue which encloses the cartilages on their median sides, is in continuation with that of the joints and of the flexor tendons. The connective tissue enclosing the superior and posterior (heel) portions of the cartilages, becomes merged into the *subcutis proprius;* and in the inferior part, with that of the frog-cushion. The connective tissue covering the median surfaces of the cartilages is less rich in elastic fibres, and lodges the deep vascular rete of the coronet. That part of this connective tissue in immediate relation with the cartilages, forms at the same time the perichondrium of these. It should be remarked that the cartilages do not, in general, present distinctly-marked contours. The cartilage which, on the surface, is often of a fibrous nature, is in the deeper parts more or less hyaline; the former portion merges, without distinct limits, into the surrounding connective tissue.

In the vicinity of the microscopically visible cartilage, the dense fibrous connective tissue is very meagrely supplied with chondroblasts,—which, however, increase in number as they approach the cartilages, until at last they are entirely in excess of the fibrous tissue, and are surrounded by an intercellular hyaline mass (hyaline cartilage). In other places, especially upon the lateral surface of the cartilages, the transition of the connective to the cartilaginous tissue is sharply marked; so that the stratum in immediate relation to the cartilage may be justly looked upon as perichondrium. Here, however, the fibres of connective tissue are also observed taking their course in the cartilage. The superficial layer of the cartilage is, therefore, of a fibrous nature.

The connective tissue situated under the keratogenous membrane forms one mass. That division situated under the perioplic ring and coronary cushion merges into that of the podophyllous tissue, and the latter merges into that of the frog-cushion. The last unites with the subcutis of the phalanges, and with the connective tissue surrounding the cartilages (parachondrium). The connective tissue found upon the lateral aspects of the cartilages, unites not only with that upon their inferior and superior portions, but also with that on their median sides, and accompanies the many vessels which penetrate these cartilages; thereby forming a dense "adventitia" to the same. The presence of this connective tissue upon all sides of the cartilages, and its union into an uninterrupted continuous mass, is a very important feature for us to recognise; because by this knowledge we are able to understand the manner in which inflammatory processes become extended in these parts.

Exact knowledge regarding the distribution of the lymphatics in the keratogenous membrane is, so far as my knowledge goes, wanting. Nevertheless, we may feel justified in assuming a rich development of these, from the fact of the presence of the large lymphatic trunks which accompany the lateral and median veins of each digit. Whether the observation of Geiger, cited by George Fleming (*Veterinarian*, 1870), that from an injured lymphatic of the foot 3 to 5 lbs. of lymph could be gathered daily, is trustworthy or not, remains questionable, especially if it has reference to the soft parts of the foot alone.

The injection experiments performed by me, in the manner prescribed by Hyrtl and Teichmann, made manifest the lymphatics in the points of the papillæ, as well as in the secondary vascular laminæ or laminellæ. The lymphatics in the papillæ seem, as a rule, to lie in the centre of the same; and at the base of the papillæ they form the rich *rete* in the sole and frog. In the "Stratum phyllodes" of the fleshy wall, it is possible to follow the lymphatics immediately to the rete Malphigii; and it appears as if the major part of them ascended the primary laminæ, in a direction transverse to the secondary laminæ. In the primary laminæ, they appear to take a course from the periphery towards the base. The lymphatics form circular

convolutions around the larger vessels, pursuing their course in the centre of each lamina, and finally unite in a single trunk, which, at the base of the laminæ, passes into a great lymphatic rete. In the "Stratum vasculosum" the lymphatics accompany the bloodvessels, which are enclosed in a dense mass of connective tissue, in order to compose larger trunks, which finally unite with those of the horny capsule.

From certain pathological phenomena, I find myself justified in concluding that the lymphatics common to each division of the frog-cushion possess a certain degree of individuality, and that the communication between both systems is of subordinate importance. The conditions to be considered in regard to the circulation in the vascular system of the foot, are equally applicable to that taking place in the large lymphatics of this organ.

Physiology of the Keratogenous Membrane.

It is not my intention to discuss the physiological processes in this organ *in toto*. I would only call attention to some special points which are still the subjects of controversy, and in some respects have not been as yet considered, although in fact deserving of most careful study. We will at first turn our attention to the conditions under which the circulation is maintained in the foot, and which offer to our view much that is interesting and peculiar; as they exert an immense influence, not only in supplying nourishment to the hoof matrix, and exciting its horn-forming activity, but also upon the inflammatory processes which may arise and run their course in these tissues.

Two factors are to be considered in studying the arterial circulation in this organ, as already remarked by Fleming (*Veterinarian*, 1872):—

1. The propulsive power of the heart.

2. The pressure of a column of blood, the height of which corresponds to the distance between the anterior aorta and the foot.

This column of blood being so considerable in height, its influence upon the forward movement of the stream must be

well considered. The blood pressure must, from this fact, be greater in the arteries of the foot than in any other region of the body. Not without good cause are the arteries in this region supplied with remarkably thick and elastic parietes, in order to render them equal to bearing this extreme pressure without danger of rupture.

The arterial system proper to the keratogenous membrane, is more richly supplied with anastomoses than any other portion of the organism. These anastomoses assure the supply, to all parts of this organ, of the necessary nourishment; so that extirpation of single vessels may take place without endangering the tissues (so-called "terminal-vessels" are not to be found in the foot); they also contribute to the regular distribution of the blood, which encounters many obstacles from the variations in pressure exerted upon it by the hoof.

(*To be continued.*)

A CASE OF TRAUMATIC PERITONITIS SUCCESSFULLY TREATED BY THE ADMINISTRATION OF SEDATIVES.

BY THOS. H. SIMCOCKS, M.R.C.V.S., DROGHEDA, IRELAND.

HAVING had, some time ago, to treat a case of Traumatic Peritonitis occurring after castration, and believing, as I do, that a successful result in such cases is not frequent, I send the particulars for publication in your valuable journal, should you deem them worthy of notice.

The animal in question was a valuable half-bred bay horse, seven years old, which had been used for breeding purposes for some seasons; but the owner not liking the trouble entailed by the possession of a stud horse, and not wishing to sell him, determined to have the operation of castration performed. For this purpose the horse was sent to my infirmary on the 20th September, 1876; and being then in rather high condition, I administered a dose of physic, and subsequently had him fed on a nourishing but easily digested diet, and gently exercised daily

until the 2nd of October. On this date, having ascertained that the testes and other organs of generation were healthy, and that hernia was not present, I had the animal cast, and removed both testicles by torsion. The horse, being of a particularly placid temperament, did not seem to suffer much during the operation, and on being released from the hobbles walked to his box as if nothing had taken place.

He was now put on a mash diet, and the case for some days seemed to promise a most successful issue. The patient fed well, was apparently free from pain, moved freely in his box, and the local swelling was even less than might have been expected; in fact, every symptom was most favourable until Wednesday the 11th of October. On that morning he ate his mash as usual, and was afterwards gently exercised for half an hour, he being evidently in the best of health and spirits. When given his mash at midday, however, he did not feed with his usual appetite—did not, indeed, eat more than half of it; but as on careful examination I found him free from any sign of disease, I was disposed to think that he was tiring of the sameness of the food, and desired that he should have a little boiled oats in the evening. At six p.m. the groom gave him this, but on returning to the horse in two hours he found that the food was untouched and the animal seemed in pain—standing with his head in a corner of the box, and pawing with the fore-feet frequently. I was at once informed of this, and went, accompanied by Mr. Ashbee, M.R.C.V.S., who happened to be with me at the time, to examine the horse. On my arrival in the stable, I found him pawing almost constantly with both fore-feet, belly tucked up and painful on pressure; legs and ears cold; respiration quickened; pulse 58, small and wiry; mouth cold, clammy and fœtid; and the countenance bearing a singularly wild and haggard expression. He had defecated an hour or so previous to my seeing him, and the fæces were then semi-pultaceous, with a few small scybalæ intermingled. As the case was clearly one of Acute Peritonitis, on consultation we determined on adopting the sedative plan of treatment recommended by Professor Ferguson in the *Veterinarian* for 1871; and the result has convinced me that the heroic measures of bleeding and purging, formerly adopted, were as unwarrantable as they were unquestionably fatal.

I now (8.30 p.m.) gave the following draught:—

Opii pulv., ʒij.
Belladonna Ext., ʒj.
Aqua fervid., gr. s.
M. fl. Hunt,

and ordered hot fomentations to be applied to the abdomen. At 10.30 p.m., Opii. pulv. ʒj *et.* Tinct. Aconite (Fleming's) ℥ xxv. were exhibited; the fomentations were continued, and in three hours afterwards another drachm of opium was given. The fomentations were continuously applied during the night; and on examination at 6 a.m. the following morning (the 12th), I found my patient much worse, the pulse being now 90, breathing very quick and shallow, and the animal evidently suffering most acute pain. Opii pulv. *et* Belladonna Ext. ā ā ʒij, were administered in water, and at 10.30 a.m. Morphia mur. grs. xv was given. At 2.30 p.m. Morphia mur. grs. x *et* Belladonna Ext. ʒij were exhibited, and I also had the animal gently evacuated by hand, but only two scybalæ were removed. At 10.30 p.m., the symptoms not abating, Opii pulv. *et* Belladonna Ext. ā ā ʒj were administered, and a suppository containing grs. x of Morphia mur. placed in the rectum. The fomentations were persevered in during the day, and were ordered to be still applied.

13th October, 6.30 a.m. Symptoms much the same, but pulse 108; the horse is constantly perambulating the box, and will not stand to be fomented; the pupils are much dilated, and the animal seems partially blind (probably the effect of the Belladonna). Gave Opii pulv. ʒj, Potassi iodid. ʒj, and used Morphia mur. grs. x in suppository.

1.30 p.m. No change; Opii pulv. ʒj, Potassi iodid. *et* Potassi bromide ā ā ʒj were given, and as he is now standing rather quiet, the hot fomentations are to be used,—a quantity of Ol. Terebin. to be put through the water.

6 p.m. No change. Repeat last medicine.

10.30 p.m. Pulse 104, almost imperceptible at jaw; pain seems not so intense, but the extremities have become deathly cold, and the mouth clammy. Removed some slimy fæces by manipulation, and ordered the turpentine stupe to be again used. Gave Potassi iodid. *et* Potassi bromide ā ā ʒj, *et* Ext. Hyo-

cyamus ʒij, Morphia mur. grs. x in suppository. He took a very little bran mash, for the first time since the attack.

14th October, 6 a.m. Has passed a small quantity of dry excreta during the night; this is the first motion since the 11th inst. Removed some rather soft and very offensive fæces by hand, and gave in a draught Potassi bromide *et* Potassi iodid. ā ā ʒij, and in suppository Belladonna Ext. ʒj, Morphia mur. grs. x Pulse is now 96, and the patient eats a little mash.

12 noon. Has passed some hardened fæces since morning; pulse 104; refused mash, and is constantly straining, but passing only a small quantity of turbid urine very frequently. Gave Potassi iodid. *et* bromide ā ā ʒij.

6 p.m. Has defecated twice during the day—excrement rather soft and very offensive; pulse 96, temperature of legs and ears good, but the horse appears dull, and is constantly crouching and straining frequently, but passing very little urine. Medicine as before, with Aconite Tinct. (Fleming's) ℥ xx.

15th October, 6 a.m. On arriving in the box I found my patient lying; the legs and ears were cold, and the body bedewed with a cold sweat. He had evidently been struggling; the mouth was cold, and had a peculiar earthy smell; pulse 96, very weak, and imperceptible at the jaw. Seems in no pain, but very dull and dejected. I now feared that gangrene had set in, and gave no medicine, as I looked on the case as hopeless. But at noon the animal seemed much better; he lay quietly most of the morning, and has defecated once. As a good deal of flatus is passing, I gave Assafœtida ʒiv in aqua ℥xx, with Potassi iodid. *et* bromide ā ā ʒj. He took some bran mash, and the pulse is down to 68.

8 p.m. Pulse 62. Has remained down most of the day, but seems stronger and free from pain, except occasional spasms. Surface temperature good, and mouth fairly warm. Repeated last medicine, and gave Assafœtida ʒij in enema. Eats some bran mash.

16th October, 6 a.m. Pulse 54; seems much better; anxious expression of countenance gone; temperature of legs and ears good, and the visible mucous membranes healthy looking; passes a little urine frequently with great straining; flatus is still pre-

sent. Emptied the rectum manually, and gave an Assafœtida enema and a draught containing Assafœtida ʒij *et* Potassi iodid. *et* bromide ā ā ʒj. He drank a quart of new milk, and took some bran mash.

1 p.m. Has lain quietly nearly all the morning; took some milk and mash.

5 p.m. Explored rectum, and removed some fæces. Gave port wine ℥x, and a quart of milk; also a little boiled oats.

10 p.m. Has continued lying almost all the day, and sometimes indicates that he has stings of pain—probably from flatus, as some gaseous distension of the bowels seems to exist. Gave port wine ℥x, Potassi iodid. ʒj *et* Ammon. carb. ʒj, and left him some sloppy bran mash. When lying to-day, he occasionally extended himself at full length on his side, and frequently rose to micturate, passing a very small quantity of urine each time.

17th October, 7 a.m. Seems better and livelier; pulse 46, rather weak; has eaten his mash during the night, and had three motions; surface temperature good; and he does not attempt to micturate so often, nor does the act seem to cause so much pain, as during the previous two days. Gave port wine ʒx *et* Ammon carb. ʒij, and he drank half a gallon of milk and ate some mash.

1 p.m. Gave Ol. Lini ℥x, port wine ℥v, Ammon. carb. ʒij; had him out for five minutes, after which he took some milk and boiled oats.

10 p.m. Repeated port wine ʒx, and Ammon. carb. ʒij.

18th October, 7 a.m. Very dull; pulse 40, and weak; appetite not so good. Micturates frequently in small quantities. Gave port wine and Carb. ammon. as before.

12 noon. Seems very dull, and straining a good deal when micturating, and is disinclined to feed. Gave Iodine *et* Potassi iodid. ā ā ʒj, port wine *et* Ol. Lini ā ā ℥vj. He is not lying down so much to-day. Gave ten minutes' walking exercise.

10 p.m. Livelier, and inclined to feed. Gave some milk and boiled oats, and the port wine and Ammon carb. From this date a steady improvement was manifest—the only troublesome symptom being the diuresis, which continued for a week, and was combated by the use of light nourishing food, boiled oats, linseed and bran mash, as well as port wine, eggs, and milk. Potassi

iodid., Iodine, and Ferri iodid., were alternately exhibited, and on the 26th October I had the pleasure of discharging my patient thoroughly convalescent. I have recently seen him, and he is now in first-rate condition, and has carried his owner's nephew to hounds during the latter part of the season.

The success which attended the use of sedatives in this case, seems to me to be a conclusive proof of the propriety of the course of treatment adopted. In Peritonitis, as in other inflammations, one of the first indications is to secure rest for the affected organs; and the use of Opium is eminently calculated to effect this, by causing arrestation of the peristaltic action of the bowels. That it did so in this instance, is shown by the fact that no fæces were passed from the 11th to the 14th October; and to this I am disposed to attribute the recovery of the animal.

In the second stage, when it may be assumed that more or less effusion has taken place, the salts of Potassium are valuable, as, besides acting as direct arterial sedatives, and thus tending to constringe the capillaries and promote resolution, they are useful in causing absorption of the inflammatory products.

The alarming symptoms which set in on the morning of the 15th were doubtless due to an attack of flatulence, though at the time I feared they were the premonitory signs of dissolution. Consequently, I did not treat them as promptly as I ought to have done; but, fortunately, the *vis medicratix naturæ* was sufficient without extraneous aid. The excessive diuresis, which was a marked feature in the later stages of the case, was probably due to debility, and also to the irritation of the kidneys produced by the excretion of adventitious disease-products. I found the *Ferri iodid.* a most valuable agent in combating this troublesome complication.

Since writing the above, I have been attending another case of Peritonitis following castration, in a three-years-old animal, which I treated on the same principles and with the same success. In this case I exhibited diffusible stimulants at an early stage, in conjunction with the opium; as at one time the colt seemed to be sinking, the pulse being almost imperceptible at the jaw. He ultimately made a good recovery, and is now a valuable horse.

Editorial.

THE INCUBATION PERIOD OF RABIES CANINA.

THERE is no disease with which we are acquainted, whose latent or incubative period is so indefinite, and in some cases so protracted, as that of Rabies Canina, or Lyssa. In "Rabies and Hydrophobia," we have entered at some length into a consideration of this feature in the disease, and especially with regard to the human species. Of all the maladies which are transmissible from the lower animals to mankind, none has excited more interest—certainly none has been invested with such terrors, from the earliest up to the present time—as that produced by inoculation with the saliva of a rabid dog. The veterinarian has not, fortunately, to contend with any mental dread on the part of his patients, after they have been wounded by some suspected or really diseased member of the canine family; and he has but to keep them under observation for some months (if he does not think it more judicious, as a precautionary measure, to destroy them), in order to satisfy himself as to whether they have been really inoculated, or have enjoyed that mysterious immunity—the benefit of that perhaps only temporary non-receptivity—which certain individuals possess with respect to the most virulent maladies. With mankind, on the contrary, and especially with nervous adults, the surgeon has a more difficult task, even when every possible measure has been immediately adopted to destroy the contagium at its point of insertion. The mental disturbance produced is often very great, and the mind of the injured person often dwells pertinacously and fatuitously on the impending danger. In this way a miserable existence of months' duration may be in store for the unhappy individual; and if the virus be implanted and have found a congenial soil, the mental perturbation may hasten its development. Recently much has been said with regard to mental Hydrophobia—that is, Lyssa due to the influence of the imagination alone. Certainly the mind of man has great power over his physical organization, but we do not believe it possible that any one could simulate the real malady. The symptoms are so distressing, so characteristic, and so much beyond the control of the patient, while the duration of the disease is generally so well defined and its termination so invariably fatal, that no one who had ever witnessed a case would venture to pronounce it as arising from a disordered mind. It cannot be an imitative disorder, as few, if any, of its victims have ever seen a person suffering from it. The symptoms are the same in the adult and in the young child, whose mental faculties are not sufficiently developed to allow it even to remember that it was bitten. We have for years insisted upon the fact, that the term "Hydrophobia," commonly employed to designate this malady, is utterly erroneous and misleading when applied to animals, while it is not altogether correct in its application to mankind. A dread of water is not a pathognomonic symptom in man, as it is present in other diseases and not always in this, while it is never observed in rabid animals. We may therefore dismiss altogether from consideration the fanciful notion

with regard to "mental Hydrophobia," as we may also that of "mental Tetanus."

In experimental inoculations, when the animals inoculated have been kept sufficiently long under observation, the latent period has been correctly noted, as will be found in the work above mentioned. The incubative period, when the inoculation has been accidental, cannot always be ascertained; but there is reason to believe that it is of longer duration, and more variable. With regard to mankind we have more definite information, as the patient or other persons can remember when the wound was inflicted. Nevertheless, when an interval of more than a year has elapsed between the receipt of the injury and the development of the symptoms, grave doubts have been entertained by many authorities as to whether a subsequent inoculation may not have taken place, which the individual may have forgotten. It appears so strange that an animal poison could lie so long dormant in the system, that cases of Lyssa occurring one, two, three, or more years after a wound inflicted by a rabid animal, have generally been received with doubt or incredulity, and the outbreak ascribed to other causes. But it appears to be forgotten that the contagium of some other maladies, like the seeds of plants under certain conditions, can exist in the living tissues for a long time without germinating—if we may use the word—until circumstances develop its latent power.

Well authenticated instances are accumulating, in which this latency of the rabific virus appears to have continued for years; and though these instances are rare—the period not often extending beyond four or six months—yet we can scarcely hesitate to accept them as reliable when we find how clearly and circumstantially their history is recorded.

This extraordinarily prolonged latency in man cannot be lost sight of by the veterinary pathologist, and particularly when discussing the origin of the disease; as it may serve to explain some of those outbreaks in which the scourge appears to arise spontaneously, and without the intervention of a pre-existing contagium. If the virus can lie dormant for three or five years in man, why not also in a dog? And if so, need we wonder that, after the cessation of an outbreak of Rabies among the canine population of a district or country, another may occur in three or five years?

Two instances of this unusual incubative or latency period have been quite recently recorded, and they are well worthy of notice in this respect. We have no very accurate statements with regard to one of the cases, and are therefore obliged to rely upon the report which appeared in the newspapers. There it has been stated that a Mr. A. Brown, of Stamford Rivers, near Chipping Ongar, Essex, and who is mentioned as being a member of the veterinary profession (though we cannot find his name in the Register), had died of Hydrophobia, the result of the bite of a mad dog three years previously. It is added that the deceased had made Rabies a special study, and had entertained the hope that the symptoms would not manifest themselves after such a long time had elapsed.

The second instance is so well described and vouched for by reliable

medical authority, that we venture to give the history *in extenso*, as it appeared in a recent number of the *Lancet*. The reporter is J. D. Hume, M.D., who writes :—

"The following case fulfils, you will admit, the indications of genuine Hydrophobia, though occurring at a remote date from the receipt of injury. The details differ from the instances where the morbid influence of the patient's imagination simulates the real malady, and he recovers on the exposure of his delusion, when the animal is proved non-rabid. Messrs. Bulsford and Young (surgeons), with myself, watched the progress of this rare example.

"An agricultural labourer, aged fifty-one, of good muscular build and average intelligence, received a slight bite on his finger in October, 1872, from his dog, which the same night gnawed through a door and worried a litter of pigs [they, becoming mad, were killed, and privately conveyed to London !] The animal next attacked another dog, which, evidencing soon its inoculation, was shot. The owner of the first infected hung his dog, now believing it really mad, and had his finger cauterised. His health from that day was not deranged, except by headache, till Monday, June 25th, of the present year, when he complained of general malaise and pain in the arm belonging to the bitten finger. He gave up labour on Tuesday, and next day sent for his surgeon. About ten o'clock a.m. on Wednesday, the characteristic symptoms began to appear. I first saw him about one o'clock p.m. He sat quietly in bed, was not even restless, but very anxious, for he had acquired the dread of fluids in idea or contact. I witnessed the nervous seizing of the glass, horror at its approach, and convulsive effort to swallow. With the above history, and such proofs of rabid poisoning, could there be error in diagnosis? The pain soon extended from the arm to the neck, the throat especially, epigastrium and diaphragm. His respiration often became gasping, with præcordial oppression. From time to time nervous erethism was excited by mere currents of air. Every hour he shuddered at the sight or sound or thought of liquids. An attempt to take medicine brought on the access of constriction of the throat. Deglutition was convulsive or denied to the sputum, and viscid or frothy saliva was ejected by jerky discharges. The tetanoid spasms continued to intensify ; movements of the jaws were irregularly performed in hawking and spitting, and delirious laryngeal noises recurred ('biting and barking' so called). He threw himself on and off the bed with loud hoarse screams. There was not much perversion of mind : his talk was at times voluble, at others abrupt, even fierce. His frame became more irritable and sensitive, his mouth parched. He was aware he had lost self-control, and warned his friends he might unwittingly bite them. His mental agitation, convulsive paroxysms, and sense of suffocation grew more severe every moment. Nervous exhaustion came on, and his last remission was the fatal termination. He never reached coma, but a degree of insensibility now and then. With staring bloodshot eyes, and incoherent words, he died asphyxiated, at nine p.m., being eleven hours after the seizure."

"Can the origin of such a convulsive attack in the saliva of a rabid dog," remarks Dr. Hume, "be disputed on the ground of the long period which elapsed from the infliction of the wound? The nervous centres are quickly poisoned by serpent venom. True, a few molecules of vaccine lymph, implanted beneath the cuticle, develop constitutional changes in a fixed period. But can the remote consequences of venereal contamination be pathologically explained? At such uncertain

intervals is the zymosis complete? Yet how tardily must the fermentation have taken place in the Hydrophobia case related in the *Lancet* of June 30th, 1877, by Dr. Burnett, where the bare arm of a man was bitten on February 22nd, and he lost his life, after four or five days' unmistakable attack of Canine Madness, on May 28th; or in another case, cauterised recently at St. Thomas's Hospital, fatal three months after! There may not be much practical advantage from pathology determining where animal poison can nestle during five years. But on what grounds can its latency for such a period be controverted? Is there not an analogy between tuberculous exudation or cancerous infiltration arriving at the active state of malignancy, and the history of *materies morbi* in human Rabies finally and fatally affecting the brain and spinal column? Why should the period of quiescence be limited without suspicion to months, and a doubt be thrown upon its prolongation for a few years?"

A "SPORTING GENT" ON THE VETERINARY PROFESSION.

IF it is sometimes well to see ourselves as others see us—even if their vision be somewhat defective or distorted—then scarcely any apology should be necessary for the appearance in our pages of an article entitled "Neology in the Veterinary Art," which was published in the September number of *Baily's Monthly Magazine of Sports and Pastimes*, and has been re-published in the *Sportsman* and *Sporting Gazette*—*minus* the Greek, which would seem to be too much for the readers of this class of literature. We dare not venture to say that we know more of the writer than is indicated by the initials "J. H. S." appended to the effusion; but if one may judge by the slang, the scraps of doggerel rhyme, and the attempts at Latin and Greek quotation, we might surmise that he belongs to that somewhat numerous class of pseudo-literary sportsmen who hang on to the sporting press, and are known among the lower stratum of turfites in which they move as "sporting gents." The majority of these are men who have failed in the calling for which their friends or relations intended them, or from various circumstances which we need not specify, have taken to the turf and the betting-ring in order to make a livelihood which they are unable or unwilling to gain in a more creditable manner. From internal evidence, we might venture to guess that "J. H. S." has dabbled, or perhaps still dabbles, in medicine—though not that of animals, as it is certain that he knows as little of the maladies of the lower orders of creatures as these creatures know of "J. H. S." Like all ignorant empirics, he entertains a high opinion of himself, and of course has his specific, which is that of the stableman—tartar emetic; though the latter, certainly *never* the veterinary surgeon, often prefers "black antimony"—probably because it is cheaper. If we could discover the whereabouts of "J. H. S.," we would commend him to the notice of the Royal Society for the Prevention of Cruelty to Animals as one far more likely to torture dumb creatures than to afford them relief—more particularly as he probably would have no more scruple in trying his hand at horse or cow doctoring, than he has in writing upon a subject of which he is not qualified, either from knowledge or disposition, to give an honest opinion.

It will be seen that "J. H. S." knows no more of veterinary medicine than is to be found in those popular horse-doctoring books which have to be written down to the comprehension of amateurs like himself; and that he

thinks the only book worthy of notice which the veterinary profession has produced during the last half-century, is poor Mayhew's "Illustrated Horse Doctor"! The presumption of such an individual in daring to criticise and stigmatise the whole body of the profession, is only equalled by the coolness with which he invokes the authority of country squires and noblemen in our condemnation. We have every reason to believe that "J. H. S.," if his article is to be taken as an indication of his character and social position, scarcely enjoys the opportunity of knowing personally the opinions of gentlemen—as a more untruthful, scurrilous, and disgraceful piece of writing never soiled the pages of a periodical which has any claim to respectability. An editor must indeed be hard pushed for "copy" when he is compelled to fill up space with such malicious and vile rubbish.

"J. H. S." begins by abusing veterinary surgeons (or "vets" as he is accustomed to designate them) as illiterate, careless of reading or study, horse-dealers and horse-copers, and utterly unworthy of confidence. But for the publication of his pernicious nonsense in *Baily*, we could not condescend to notice such disreputable imputations as applied to the entire body of the profession.

We do not deny that a few members may rather merge themselves in the horse-dealer's vocation, and they may even be illiterate and disinclined to study. At one time, owing to the public neglect of veterinary science in this country, education was of entirely secondary importance, and many men were admitted to the schools, and received a diploma, who could never be a credit to the profession. Not only this, but it is to be feared that some of the teachers themselves were very imperfectly educated, and valued either general or scientific education but little. Some years ago, we remember in a mixed company a professor—the principal of a school, and who considered himself to be the head of the veterinary profession, but whose chief claim to consideration lay in being a good talker—sneering at reading and writing men, and decrying those accessory sciences which have done so much, and will do more, to render medicine, human and veterinary, more perfect. But he knew more of the turf, perhaps, than of these sciences; and though his influence and example—so far as these went—could not fail to be damaging to some of those who studied under him, yet he never was accepted as a representative man by the entire body of the profession, and there is good reason to believe that his unhappy influence has to a large extent, if not entirely, disappeared. A long time has now elapsed; and the veterinary surgeon of the present day is, as a rule, very different to what he was, even not very many years ago; and we can confidently appeal, with some degree of pride and satisfaction, to the additions to our professional literature during the last ten years, in proof that we are not illiterate. There are in most professions men who read and write but little; though in ours—thanks to the Royal College of Veterinary Surgeons—they are decreasing in number every year. Men who act discreditably, and degrade themselves and their calling, are also to be found in other professions, and it is indeed fortunate for us that the most serious accusation "J. H. S." can prefer against us in this respect, is that we are "horse-dealers" and "horse-copers." If we admit that a few veterinary surgeons interfere with the horse-dealer's trade, and appropriate a share of it, we indignantly repudiate the slur being cast upon the entire profession. Some medical men have degraded themselves and injured the reputation of their calling by unworthy deeds, and some of these deeds in connection with the turf. Sporting and gambling doctors, who have committed crimes and offences through their *penchant* for horse-racing, are neither few nor far between. We may instance what occurred at Rugeley some years ago, and more recently the case of a sporting member of the medical profession who was severely punished for perpetrating a low libel on a

distinguished nobleman of unblemished character. Yet would any one dare to stigmatise the medical profession as composed of murderers, vulgar libellers, etc., merely because it had the misfortune to include in its ranks men who could be guilty of such offences, and who furnished matter for sermons on the immorality of the turf? Would any one venture to accuse the patrons of the turf of being everything reprehensible and bad, merely because a lot of disreputable characters have brought disgrace upon what was intended to be, and undoubtedly is, a most laudable and patriotic object?

As to the poleaxe and the bullet, it is needless to remark that a writer who knows so little of other matters connected with veterinary science, is not likely to understand those measures which are based on economical, sanitary, and humane principles, with regard to the extinction of contagious maladies. This ignorance is not rare, and it has cost the country heavily indeed.

"J. H. S." bases his defamatory strictures on a supposed outbreak of Typhoid Fever among horses at Baron Rothschild's, and is particularly severe upon two respected members of our profession for so designating the malady, which he asserts is impossible in the equine species. With regard to the impossibility of Typhoid Fever occurring in the horse, of course such a novice as the writer evidently is, is not qualified to give an opinion—his knowledge of pathology being limited to the elementary horse-doctoring books he enumerates, and we can guess what kind of knowledge that must be. It is unnecessary to state that the highest authorities in veterinary medicine have distinctly and well described both a Typhus and a Typhoid Fever as affecting horses. These authorities are not mentioned, however, in popular books for amateurs.

The charge of Neology which furnished him with a title and excuse for his paper, and was based on newspaper rumours, he is compelled at the end of his diatribe to withdraw, and he is also obliged to confess that the accusations made by him against our colleagues, Messrs. Mavor and Lepper, are likewise destitute of truth. Nevertheless, while admitting this much, he maintains his defamatory charges against the entire body of the profession. He perhaps knows, from painful experience, that it is safer to libel a body of men than an individual.

But we need not comment further upon this—one of the most vulgarly disgraceful, unmerited, and mendacious attacks to which any profession was ever subjected. Why it was ever allowed to appear in type we are utterly at a loss to comprehend. An effusion which bears untruthfulness and libel on its face, while its rancorousness is evidently, in sporting phraseology, begotten by prejudice out of ignorance, should surely not have been allowed to find its way into a respectable magazine. We cannot exempt the editor of *Baily* from a large share of blame in this indecent attempt to traduce the practitioners of veterinary medicine. When he discovered the untruthfulness and unfairness of the contribution, justice to himself, his journal, the public, and the veterinary profession would, we imagine, have prompted him to suppress it, and to have done for ever with such a writer as "J. H. S." The editor has inflicted on us a great wrong by the line of conduct he has pursued, and he has perhaps prejudiced the reputation of what we believe has hitherto been an esteemed periodical.

"NEOLOGY IN THE VETERINARY ART.

"THE deplorable death of three valuable horses which belonged to the late Baron Mayer de Rothschild has induced many country squires and owners of horses to reflect whether the veterinary art has kept pace with the spirit of the age, or, indeed, whether it has made any progress whatever during the last half-century; and the result of enquiries and of sober reflection has not been altogether creditable to the profession. With one single exception,

there has not been a book written connected with the veterinary art during the last thirty years which would not have been almost a disgrace to an old washerwoman. The exception is the 'Illustrated Horse Doctor,' by the late Edward Mayhew, a gentleman

"'Whose life was too short for friendship, not for fame,'

and whose work is a masterpiece for eloquence and precision of language, but unfortunately it contains but little that was not previously known, and has not added materially to the stock of knowledge. Mr. Mayhew, for the most part, seemed to content himself with dressing anew old facts, and presenting them in an attractive garb, illustrated by numerous graphic, and in some few instances very humerous, woodcuts.

"It is scarcely less than a reproach that the veterinary profession, as a body—the country practitioners especially—concern themselves much more with the buying and selling of horses and screws, than they do with the advancement of their art. Indeed, most of them regard a good 'deal' as a far greater triumph, or a brighter feather in their cap, than they would an important discovery in science, or a useful improvement in their art.

"Whilst horse-dealing and horse-coping are pursued with an eagerness and perseverance worthy of a much better cause, it is a deplorable fact that veterinary science and veterinary art, lamentably deficient though they be, are at a standstill. We can hardly conceive of a field which, if thoroughly cultivated, promises to bring forth fruit in such abundance and with such unmeasured fertility. When any art is in a state of degradation, every step onward is not a step in advance merely, but it is a step which brings greater credit to its discoverer than would a similar addition to the stock of knowledge in any branch of art not at a standstill like the veterinary art.

"There is no art whose professors are so boisterous and so self-sufficient as are the Vets., and there is none in which they ought to be more abashed when they reflect how little they know, how very few are the triumphs of their skill, and what a very insignificant mite they contribute to the treasury of knowledge. The poleaxe is their sheet-anchor—their sovereign remedy, their all-in-all. Does an epidemic rage, they never attempt to grapple with it, and treat it in a scientific manner according to its nature or symptoms, but they give imperious orders for it to be 'stamped out' at once, and it is very humiliating to have to record the fact that the poleaxe is

"'———— the god they adore,
Their steadfast, unchangeable friend.'

A hint that the life of a valuable horse or cow ought not to be sacrificed so unceremoniously, and without any attempt at saving it, is at once scouted with derision, and its author frowned down with contemptuous ridicule. These jubilant and self-sufficient professors know best; a large experience has taught them that there is but one remedy in such cases—the poleaxe or the bullet. Alas! we fear it is only too true that their experience has taught them that fatal fact; but what a sad experience it is! They have never tried any other plan, and they,

"'———— perched near science top,
Sit only watchful with their heavy wings,
To cuff down new-fledged talents that would rise
To nobler heights, and make the grove harmonious.'"

"We once heard a nobleman—the owner of an extensive stud of horses—make the remark that veterinary surgeons, as a body, were the most illiterate set of men in the kingdom'; and we really believe there was not only much truth, but justice in the observation. If when they 'leave college' they knew

but little, it is very seldom indeed that any one of them tries to add to his stock of knowledge, or to keep even what little he has in repair by reading or resorting to conference with wiser heads than his own. Not many days ago we had occasion to call upon a Vet. who has a large—indeed a very large practice, which requires six horses to work it. We wanted the loan of a veterinary book for a few hours: to our astonishment he did not possess it. He showed us his library, which consisted of but three volumes—not one of them worth sixpence. They were very old editions of 'White's Farriery,' 'Nimrod on the Summering of Hunters,' and 'Morton's Pharmacy.' He told us he never read them, or any other books; that he was, if anything at all, a 'pre-eminently *practical* man, and no theorist.' We much fear that he is only an ordinary representative of a very large class; a class sadly too numerous, and whose influence in some measure resembles that of the destroying angel, and who cry havoc without remorse; who deride or laugh to scorn that modest merit which in such a profession is somewhat of a satire, and which fares even worse than philosophy, which, according to the aphorism, is 'praised' though it 'starves.' Modest though sound acquirements in the veterinary art, though their possessors may undoubtedly starve, are, we fear, seldom praised. The noisy charlatans reap the harvest, and, as was well said by Cowper,

> "'Whilst others toil with philosophic force,
> *Their* nimble nonsense takes a shorter course,
> Flings at your head convictions in the lump,
> And gains remote conclusions with a jump.'

"In the present day they, more than any other class, realise the anathema of the poet of Megara—

> "'Αἰδὼς μὲν γὰρ ὄλωλεν,' ἀναιδείη δὲ καὶ ὕβρις
> Νικήσασα δίκην, γῆν κατὰ πᾶσαν ἔχει.'

"The first intimation we had of the illness of Favonius was contained in the following paragraph which appeared in the *Daily News* of the 7th of August:—

"'A mysterious epidemic, which has carried off Baron Rothschild's well-known horse Restitution, together with a valuable brood mare, threatens also the life of the famous Favonius. The disease, which suddenly appeared in the Crafton stables only a few days ago, appears to be some kind of fever; but both London and local veterinary surgeons have as yet been unable to ascertain the exact malady, or to cope with it, and very little hope is entertained that Favonius will recover.'

"It will appear from this paragraph that the disease was at first 'mysterious,' and it required the death of Favonius—perhaps the most valuable horse in the world—to clear up the mystery. But at what a fearful cost was the enlightenment purchased! In reality was much light thrown upon the 'mystery,' after all? The following letter from the stud-groom appeared in the papers on the 11th of August:—

"'DEATHS OF FAVONIUS, RESTITUTION, AND TOURMALIN.—We have received the following letter from Mr. Charles Markham. Mentmore, August 7, 1877.—Sir,—I am sorry to inform you we have lately been most unfortunate with our stud, having lost three very valuable animals—namely, Tourmalin, Restitution, and Favonius. Tourmalin died on Tuesday, July 31st; Restitution on Thursday, August 2nd; and Favonius on Sunday, the 5th inst. Restitution and Favonius were both taken ill on the Saturday previous, and Tourmalin a few days before. Messrs. Mavor and Lepper have attended them, and pronounced the disease as Low Fever.'

"With all the respect due to Messrs. Mavor and Lepper, we submit that such a disease as Typhoid Fever is impossible in the horse; but it is the

fashion nowadays to call every disease in the human subject 'Typhoid Fever, and we suppose the veterinarians fall in with the fashion in a matter so trifling as this. We have searched through the pages of all the works on the veterinary art within our reach (and they are not a few), and we cannot discover even so much as the mention of such a disease as Typhoid Fever. We have looked in vain through the pages of 'Stonehenge'; of Darvill's 'Treatise on the Care and Treatment of the English Racehorse'; of Youatt 'On the Horse'; of White 'On the Veterinary Art,' a new edition by Spooner; Blaine's 'Outlines of the Veterinary Art,' a new edition by Mr. Steele, veterinary surgeon to the 12th Lancers; 'The Illustrated Horse Doctor,' by Mayhew; 'Horses and Stables,' by Colonel Fitzwygram; 'The Perfect Horse,' by Murray and Loring,—for we can find no mention of such a disease. Perhaps Messrs. Mavor and Lepper, who do not appear to have distressed themselves hitherto by contributing to the literature of their profession, will favour the world with a description of the nature and symptoms of the alarming and mysterious malady to which the horses at Crafton succumbed. We know that in the human subject diseases are *named* in the most reckless manner. Nineteen out of every twenty cases of chronic disorders or ailments are set down at once to the liver; whilst of acute diseases, differing as widely as possible in their onslaught, progress, symptoms, and termination, as diseases can do, are all set down to the fashionable ailment of the day—Typhoid Fever. The neologists set at defiance Lord Bacon's aphorism in which he declared that 'when men called things or diseases by their proper names, that they should then command them.' But Bacon seems to have lived in vain, and the haste displayed nowadays to jump at conclusions and to name diseases, regardless of their nature, causation, and condition, reminds us of the

> "'Fox who had a wound, but didn't know where,
> So he placed his hand on his stern and thought it was there.'

"As we did not see Favonius during his illness, it would not be presumption merely, but sheer foolhardiness, to offer a dogmatic opinion as to the real nature of his disease. The following is a suggestion merely, and must go and be taken for just so much as it is worth, which is perhaps not very much—and no more.

"We have seen several cases of horses who have been kept in high condition throughout the season being taken suddenly and alarmingly ill, with a quickened pulse and with a high temperature of body, arising, as we believe, from the want of sufficient exercise and a proper amount of ventilation in their stables. They are allowed to luxuriate in their boxes, which in the summer season are seldom cleaned out, and never at all thoroughly. The consequence is that the urine and other excreta with which the litter is saturated is evaporated by the heat of their bodies and the heat of the weather; the horses breathe an atmosphere highly charged with ammoniacal vapour, and irritation of the fauces and air passages results. There is also a highly feverish condition of the body, and the symptoms more nearly resemble those of the condition which goes by the name of blood-poisoning than of Typhoid Fever. In Typhoid Fever the predominant symptom is stupor; in the disease we have alluded to, the animals are in anything but a state of stupor; on the contrary, they are highly excited, and almost wild with anguish.

"In such cases as these, when the mucous membrane of the mouth and fauces is in an inflamed state, sometimes amounting to sloughing, the mischievous meddling of the doctors, who will insist on thrusting horse-balls down the throats of the poor sufferers, is more than reprehensible. Such remedies can do no good whatever, and the mode of their administration causes much mischief and inflicts intense suffering upon the animals. We

once saw a brute of a Vet. just on the point of administering a ball to a horse suffering in the way we have mentioned. We remonstrated against such an act of barbarity, but our remonstrance was of no avail. The wretch thrust his arm down the throat of the horse; the horse reeled about with intense agony, and when the brute withdrew his hand and arm they were covered with blood, mucus, and shreds of membrane which his violence had separated from the mouth and fauces. The poor horse died in great agony a few hours afterwards.

"If medicines are to be given in such cases, they ought to be administered in a *liquid* state; and there is only one medicine (antimony) which can be of the slightest utility in such diseases, and we are sorry to say that the preparation of that mineral most in vogue with the horse-doctors is not only the least valuable as a remedy, but the most obnoxious in other ways. We allude to the sulphuret of antimony, which in small doses is almost inert, and in large ones mischievous. It ought to be replaced by the tartar emetic, or tartarized antimony, which is not only a most valuable remedy, but cheap enough in all conscience for frequent use. It has also another recommendation—it is all but tasteless; and as it is readily soluble it can be given in the water, which in such cases the animals ought to have given them *ad libitum*, and which they will drink with avidity, as thirst is one of the predominant symptoms of the disorder. Abundance of pure water, with moderate doses of antimony, well-ventilated stables of a genial temperature, and the atmosphere rendered moist by means of steam or vapour from hot water—these are the weapons with which to combat such diseases as those of which we have been treating, and which are sadly too prevalent. These remedies, if rigidly adopted, would soon supersede the poleaxe and the bullet, and they would also be the means of saving many valuable horses whose lives are sacrificed annually by hundreds—nay, by thousands.

"Within the last few months it has been our lot to be brought into contact with a number of practitioners of the veterinary art; and we have been astonished at their almost unanimous indifference to ventilation and other hygienic remedies which did not issue from the drug shop. We did not expect much, but most certainly we were not prepared for such stolid indifference. We met with only two who had seen the 'Conversations and Recollections of Mr. Thomas Coleman,' which have appeared from time to time in 'Bailey,' and those two affected to treat Mr. Coleman's observations with disdain. We should have thought the recollections of a man of almost unexampled experience, of such great sagacity, and so keen an observer as Mr. Coleman, would have commended themselves even to the veterinary mind; but we are mistaken. If he had counselled a system of drugging or drenching, of horse-coping, firing, or poleaxing, his remarks would probably have met with respect and consequent adoption; but as he advocated humanity, on the principles of a refined common sense, he is not regarded as an 'authority.'

"Since the preceding remarks were in type we have made a pilgrimage to Crafton, and inquired into the symptoms and manner of the deaths of the three famous horses which have given rise to the writing of this article. We were not surprised to learn that none of them succumbed to any epidemic disease whatever, but that the death of each arose from an entirely different cause. One of them died from disease and degeneration of the kidneys; the second from Pleuro-pneumonia, attended with great anguish and excitement, —so much so that before death he appeared almost raving mad, and ran savagely at the walls of his box. These, we need hardly say, are not the symptoms of Low Fever. The third horse died from irritation set up by a vesicle calculus from which he had been a long sufferer. So much for the 'mysterious epidemic' of which our contemporaries made so much and knew

so little. One of them even got maudlin with his sympathy, and hoped the horse would ultimately recover when he had been dead three days!

"It is, however, but just to the veterinary surgeons who were in attendance to say that they never said or supposed the horses to be afflicted with Low Fever, of which the daily and other papers have made such fuss. Although we adhere to what we have said about the ignorance of veterinary surgeons, still, in this particular case, we think nothing was neglected by the veterinarians or by Charles Markham, and nothing could have saved two of the horses.

"Early in the summer there had been a kind of epidemic (!) disease amongst the horses and mares at Mentmore. About twenty of them were afflicted, but none of them very seriously, nor did any of them succumb to it. It was designated by a veterinary surgeon to be a sort of 'Bronchial Influenza,' whatever that may be; and was supposed to have been conveyed by one of the mares sent there.

"'Sapiens is qui se ad caucas accommodet omnes.'

"J. H. S."

GLANDERS AMONG ARMY HORSES.

SOME weeks ago a startling announcement made its appearance in the daily press, to the effect that Glanders in a malignant form had broken out among the horses of the 21st Hussars at Hounslow. We are glad to be able to state that the report is erroneous, and appears to have been due to the circumstance that during the absence of the regimental veterinary surgeon a horse was destroyed, supposed to be suffering from that disorder. The fact that some thirty or forty horses were suddenly attacked with Influenza undoubtedly gave rise to the alarming rumour. All the animals have recovered, and none of them ever presented any symptoms of Glanders.

MR. FIELD'S GIFT TO THE ROYAL COLLEGE OF VETERINARY SURGEONS.

THE name of Field has been for so long and so honourably connected with the history of veterinary medicine in this country, that it is a matter for deep regret that there is a probability of its being less prominently brought before us than in the past three-quarters of a century. The retirement of Mr. Field from the more active duties of his practice, brings to mind the fact that the history of his family, in so far as it relates to the profession, is almost coeval with the advent of veterinary science in Great Britain, and is largely identified with its rise and progress. With a generosity and a magnanimity almost beyond praise, we learn that Mr. Field has determined that the name shall not disappear from notice, but shall continue, as heretofore, to be associated with professional advancement and intellectual culture, he having presented his most valuable library and the contents of his interesting museum—both the careful accumulation of many years, and the former containing books of almost priceless value—to the Royal College of Veterinary Surgeons. We need not expatiate upon the worth of this gift to the profession. For centuries to come students in comparative pathology and in veterinary and medical literature, will accord to Mr. Field their thanks for his munificence; while we are certain the present members of the profession will gratefully accept his gift and carefully treasure it, not only for its usefulness, but in memory of a name which must always be mentioned with respect. Mr. Field has offered an excellent precedent to those of us who can benefit the profession in this

direction. We fear that for many years the claims of the Royal College have been rather overlooked, and that its utility as a museum and library—a repository of our literary and pathological treasures—has been neglected. When our new building is established, we earnestly hope that this neglect will be repaired, and that many will be found to follow Mr. Field's excellent example, and thus render our corporation more worthy of public recognition.

Proceedings of Societies.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE thirty-fourth meeting of the above Association was held at the Star and Garter Hotel, Wolverhampton, on Friday, 24th August, the President, A. B. Proctor, Esq., of Coventry, in the chair.

The following were also present :—Messrs. H. J. Cartwright, R. Cartwright, J. W. Hill, Wolverhampton ; A. Over, Rugby ; E. Stanley, Warwick ; O. J. Hills, Leamington ; W. A. Taylor, Manchester ; G. Carless, Worcester ; W. Carless, Stafford ; Green, Dudley ; Hodgkinson, Uttoxeter ; Blakeway and Blakeway, jun., Stourbridge ; S. Knott, R.A., Shorncliffe ; F. Oliver, London ; Morton, Worcester ; Hodgkins, Hanley ; Barnes, Whitchurch ; Kenyon, Ashbourn ; and the Secretary. Visitors—Dr. Manby, F.R.C.S., and Mr. Newnham.

The minutes of the preceding meeting having been read and confirmed, and the Treasurer's accounts presented and passed, the following were elected new members of the Association :—Messrs. A. Hodgkins, Hanley ; A. Green, Dudley ; H. J. Goodall, Melton Mowbray ; and H. J. Webb, Nuneaton.

Election of Officers.

The following were elected the officers of the Association for the ensuing year :—

President.—Mr. H. J. Cartwright, of Wolverhampton ; proposed by Mr. W. Carless, seconded by Mr. A. Over.

Vice-Presidents.—Messrs. A. B. Proctor, retiring President ; W. Carless, and H. M. Stanley.

Treasurer.—Mr. F. Blakeway ; re-elected on the motion of Mr. W. Carless, seconded by Mr. H. J. Cartwright.

Secretary.—Mr. G. Carless, Worcester ; proposed by Mr. E. Stanley, seconded by Mr. H. Olver.

The President then introduced Mr. J. W. HILL, who read his essay on "Distemper in the Dog."*

Discussion.—The point to which the discussion was principally directed was the similarity of the two diseases—Distemper in the dog and Typhoid Fever in man. Some diversity of opinion existed, and a lively discussion ensued, in which many of the members took part.

Dr. MANBY was strongly of opinion that there was a great similarity in the two diseases, and explained that the various forms of Distemper were also clearly seen in Typhoid in its various stages, and in different subjects. He thought this subject was one full of interest to some energetic student, and of great importance alike to man and beast. He wished that there was greater interchange of opinion between the two professions, as it would be interesting to both, and beneficial to pathology generally.

* See p. 260.

On the conclusion of the discussion, at the request of Mr. Blakeway, Mr. Hill consented to the publication of his essay in the Journals; and on the motion of Mr. E. Stanley, seconded by Mr. G. Carless, a most cordial vote of thanks was passed to him for his highly interesting paper.

Votes of thanks were also passed to the retiring President, Treasurer, and Secretary, for their services during the year.

Some papers having been received from Mr. Cowie, M.R.C.V.S., respecting the practice of vivisection as carried on in some of the veterinary schools of France, it was resolved (with one dissentient) that a letter be sent to Mr. Cowie, expressing the opinion of the members that vivisection was unnecessary for educational purposes.

HARRY OLVER, *Hon. Sec.*

Jurisprudence.

UNSOUNDNESS OF A HORSE FROM "ROARING."

AT the recent Gloucester Assizes, before Baron Huddleston and a special jury, the case of Thomas *v.* Young was heard. Mr. Matthews, Q.C., and Mr. Maddy appeared for the plaintiff; Mr. Powell, Q.C., and Mr. Anstie for the defendant.

The action, which was one of interest in itself, was brought on a cheque for £150, which had been drawn by the defendant to the plaintiff's order, and afterwards payment of it stopped, under the following circumstances:—The plaintiff, who was a gentleman of position in Glamorganshire, and who had been the sheriff of his county, living at the Heath, near Cardiff, being anxious to sell a hunter, took it to the Islington Horse Show last June, and entered it in the hunters' class. The horse, which was named Pembroke, was a valuable animal, having cost Mr. Thomas £250, and having won the first prize at a local show in Wales as a heavy-weight hunter. According to the plaintiff's account, which was corroborated in certain particulars by his groom, and by a gentleman—Captain Dighton—who was with the defendant, Mr. Bernard J. Young, of Richmond, near Sheffield, was attracted by the appearance of the horse at Islington, and expressed a wish to try it. Mr. Thomas said he might try it when and how he pleased; and the defendant then took the animal outside and rode it up and down the street for a quarter of an hour or twenty minutes. Upon his return he said the horse grunted a little, but he was prepared to give the plaintiff £150. The plaintiff at first declined the offer; but ultimately, rather, he said, than take it back to South Wales, and being anxious to sell the horse, he consented to take £150; and it was agreed that the defendant should send him a cheque to Arthur's Club. This was on Friday, the 8th of June; and on the following Monday the plaintiff, who had been obliged to return to Wales without going to Arthur's, found, on his arrival, two letters awaiting him from the defendant. In the first of these, dated the day of the sale, the defendant enclosed a cheque for £150 to the plaintiff's order, with the following endorsement on the back:—"For a chestnut gelding, Pembroke, five years old, warranted perfectly sound, free from vice, and all right." In the second letter, dated the 9th, the defendant said the horse had been examined by a veterinary surgeon, who had telegraphed to him that the horse was a roarer. "With this advice," the defendant wrote, "of course I cannot keep the horse as a sound horse, but as I believe you thought the horse was sound, and I do not wish to inconvenience you, we had better meet and see what is to be done." The plaintiff, in reply to this letter, wrote: "You bought my horse at your own price,

and without any warranty at all. I told you all I knew about him, and what I had been doing with him. I most certainly was not aware that the horse was unsound, and it was hardly likely that the horse should have been commended in the hunters' class had such been the case." The defendant to this replied that he only paid £150 on the condition that the plaintiff sold the horse as sound, and he certainly should not keep it. The defendant then stopped payment of the cheque, which had been endorsed and presented by the plaintiff, and sold the horse by auction. The price which it realised was £55 13*s.*, and this sum the defendant paid into court.

The plaintiff was cross-examined why he endorsed the cheque after he had seen the warranty written on the back by the defendant; and he explained this by saying he did not know what the legal effect of striking out the words might be, and as he had repudiated the notion of a warranty in his letter to the defendant before he presented the cheque, he thought it unnecessary to do more.

Mr. B. Cartledge, of Sheffield, Fellow of the Royal College of Veterinary Surgeons, ex-President, and Member of the Court of Examiners, was called. He said he examined the horse on the 9th of June, immediately on its arrival at Sheffield from London, and found the animal unsound in its wind. This he at once telegraphed to the defendant. The disease must have existed for some weeks at least. He examined the horse again on July 13th, and he was still a "roarer," and would remain a "roarer." He was not only an unsound horse, but for the purpose of hunting was, comparatively speaking, of no value.—Cross-examined: "Grunting" and "roaring" were two different things. "Grunting" was a habit and suggestive of "roaring," but of itself was not an unsoundness. "Roaring" was a disease, and was unsoundness. The case of the horse Pembroke was clearly one of disease.

Mr. Hoole, veterinary surgeon, Sheffield, had likewise examined the horse, and found him a "roarer." He confirmed the evidence of Mr. Cartledge.

The defendant, too, was called, and gave his own account of what had happened. He said, after trying the horse, it "grunted" a little, but he did not attach much importance to this, knowing that it had been severely examined at the show and had been commended. As to the actual sale, his account was that he had bought the horse after having said to the plaintiff, "I have had no fair trial, but I like him; and if you will sell him as a sound horse, and all right, I will give you £150."

The learned Judge asked the defendant if anything was said about the age of the horse, or being free from vice; and the defendant admitted these words had not been used in conversation, but said he had put them into the endorsement, because he thought that was the usual form of a warranty.

The learned Judge, in summing up the case, said the burden of proof rested on the defendant. If the horse was sound at the time of sale their verdict must be for the plaintiff; but if it was unsound, and being unsound there was a warranty by the plaintiff that it was sound, their verdict would be for the defendant.

The jury immediately found for the plaintiff, and his lordship gave judgment for £150, less the sum paid into court.

Obituary.

We much regret to have to announce the death of Mr. E. S. Edgar, of Dartford, on August 17th, at the early age of forty-three years. Mr. Edgar graduated in 1861, and was much valued and respected in and around Dartford, where he had an extensive practice.

On the Continent, the death of M. Laroque, ex-professor of physical science at the Toulouse Veterinary School, is reported. The deceased bore a high reputation as a man of science, and died on his property at Montmorin, canton of Boulogne-sur-Gesse, of the malady which had necessitated his retirement from active life.

The heaviest loss, however, which veterinary science throughout Europe has sustained for very many years, is in the decease of Professor Gerlach, Director of the Berlin Veterinary School, who was justly considered one of the most distinguished scientific veterinarians in Europe, and one of whose valuable contributions to science—that on Tuberculosis—we alluded to at some length in the last issue of the *Veterinary Journal* (p. 203). From an esteemed correspondent, who was a pupil and affectionate friend of the deceased, we have received the following sympathetic obituary notice, which obviates the necessity for our dwelling longer on a bereavement which all lovers of scientific progress must deeply mourn, and which deprives Germany of one of her best men :—

IN MEMORY OF ANDREAS CHRISTIAN GERLACH,

Late Director of the Royal Veterinary Institute Berlin, Prussia. Born in 1811, *at Saarstadt, in the Harz Mountains; died at Berlin, August* 29, 1877, *aged* 66 *years.*

BY A STUDENT.

And I hear the voice of coming generations saying, "Well done good and faithful one: you were indeed our 'Standard Bearer of Truth.'"

IT is not my purpose to write even a notice of the life of our late Director: for that duty others of his countrymen are far better fitted, and it will undoubtedly be done. For me comes the more difficult task to describe the friend, and still not overdo the work of judging the man. It is of Gerlach as Director, as scientist, as man, I would say a few words, because I believe they may be of benefit to many a student now working his way upward. A brief notice of his life will, however, be a fitting introduction to this. Born in 1811, we find him graduating from the Berlin school in 1833 as a veterinarian. He took to the profession from his intense love of animals—a passion which only ceased with his life, and which his dumb friends often returned to the best of their ability. From 1833 to 1844 he practised privately in and around Halbestadt, in Saxony, being in the last year appointed official veterinarian of that district. In 1847 we find him as assistant, and then as teacher, at the Berlin school. In 1859 he received the honourable appointment of Director of the Royal Veterinary School at Hanover; and between this time and 1870 were made the greater part of his original researches, which have gained acceptance not only in veterinary but human medicine. Gerlach was the first to deny the abiogenesis of Glanders, and the truth of his assertions are being daily confirmed. To him are also due the primary notions, and the investigation into the infectious nature of the disease called Tuberculosis in cows; and the obstinacy with which he defended his views was greatly owing to the opposition he received from many members of his profession. As the case now appears, Gerlach's position becomes each year more strongly supported, and that of his opponents weaker. In 1870 he was called to the Directorship of the Royal School at Berlin; and here began his master-work, or rather he had a better opportunity to attempt to promote the idea of his life—viz., the introduction of a scientific method into veterinary education. In this work he had too

much to overcome to be more than partially successful; and, consequently, the late Director of our school is not alone to be judged by the work which he did, but by the work he would have done. Neither the Berlin school alone, nor the profession in Germany, are the losers by the death of this exclusive scientist. The veterinary profession of the world has, in the writer's opinion, lost its *Standard Bearer*, the leader of its *Forlorn Hope*. Bourgelat was indeed the one to lay the foundation of veterinary education; but Gerlach was no less the first to make a scientific study of the requirements of veterinary education: narrowing his entire energies to the one point—the introduction of a scientific method into our teaching and practice. Our late Director was indeed a Luther in the school of veterinary thought. In some respects he seemed to be a very one-sided man; but to those who knew him better, he was a man bending everything, sacrificing everything, for the success of an ideal object. That object was the elevation of veterinary medicine to a science, and the fitting of it to take its place in the bright halo of the sister sciences of the world. For this he gave his life—for this he made a martyr of himself for years, bearing with great dignity ill appreciation and bitter opposition from those he was giving his life to serve. To others there may have been but one Gerlach, and that the autocratic Director of the school—the man who would neither hear nor bear a word of contradiction; to others, and among them the writer, there was another Gerlach—the sincere friend who greeted me with all the kindness of a father on my arrival in a foreign land, and whose watchfulness, deep interest, and encouraging words of advice, as well as caution, for the past two years, are only to be compared to the tender care of a mother. The autocrat has been at the same time the dearest friend of my life.

The entire character of the man might be written in one sentence: "Be sure you are right, then go ahead regardless of cost." That he did this, every one will testify. He was a hard and exact student of his position and responsibilities, estimated exactly the worth and ability of each of his assistants, and knew much better than any other leader of our calling, judging by their writings, the course which can alone succeed in the elevation of our profession. He was frequently accused of want of regard for the opinions of others. Persons who, in general, make such accusations, have very little knowledge of how the world has been made. Generosity towards the opinions of others is a virtue in the general relations of society, but under some circumstances, if continued or indulged in, becomes a weakness.

Such a place is the one filled by our late Director. In judging of Gerlach's character, the writer is not considering him in the narrow limits of Director of a school; but as the ideal man, the true Gerlach, the standard-bearer of our profession. Another may with honour fill his place as Director, but this place of greater honour is the world property, and open to the world. Gerlach was, as has been said, looked upon as unjust, and as ignoring the opinions of others. Those who said this little understood the true nature of the man of whom they were speaking. Nothing ever came from Gerlach without mature reflection; nothing was ever done by him which was not intended for the elevation of our unfortunate art into a science. Every man selected by him for any position as teacher in the school was the one best known to him. That he did not make mistakes would be giving him a character above mortals. That he did not endeavour to do only his duty, but his ideal duty, would be false to deny. This apparently cold man was the most enthusiastic, yet practical idealist, the writer has known. His course was only determined after the most careful consideration of all sides. He consulted with those to whom he was himself responsible—not with those it was his duty to direct. Everything was by him judged according to his ideal light: to this perfection he would attain; to this end all must be

sacrificed. Great practitioner though he is said to have been, he knew full well that this much lauded practical education was, and is, the *curse*, the carcinoma, consuming our vitality to-day. He did not neglect the practical side, but he would put it where it should be, where it must be sent, before we can advance to a science,—that is, as a worthy and necessary assistant to mankind. Science is not practice alone, but this much lauded practical education is of itself little better than educated quackery. Knowing this, knowing the right, strong in the self-consciousness of right and his own ability, Gerlach went onward, entirely regardless of men. Many and many a time, in speaking with the writer regarding his life's work, would he say, "My friend, would we could consult more with those we would work with!—but it cannot be; as you go on with your work, you will find this one would modify that, and another this part of your plan, and the end would be that nothing of value was done; study, think, weigh all things, and, as said before, be sure you are right and go ahead." Was Gerlach alone in thus reading the art of human progress? Emphatically No! The great luminary of human medicine, and the great leader of humanity in Germany, Virchow, as well as other men of the same kind, living and passed away, have all found this to be the sole pathway to success. So it will be to eternity: the great must walk alone. Gerlach was no exception to this rule, and so it will be with the one who would take his place as leader of the forlorn hope. All are willing to testify to his great work in contributing to the better appreciation of the profession in his native land, and the day will surely come when the judgment the writer now gives will also be accepted. Gerlach sacrificed all thought of himself; veterinary science was his idol, and like the Hindoo enthusiast who allows himself to be crushed by the wheels of his advancing god, so was Gerlach crushed; he sacrificed himself for our cause. Fellow-students in Germany, let us make our late Director our study; educate yourselves broadly,—but when our time comes, when we too must select the point upon which we will work for our professional advancement, we too, like him, must concentrate all our energies and hold them well in hand for this one work; like him we must consider no sacrifice too great, no work too hard. We have before us a sacred duty—I as a foreigner, you still more as his countrymen, all of us as men and veterinarians—to see that the tree of science, which he planted and which he gave his life to nourish, does not suffer for want of support. The best monument we can build to his memory is to do our part in the completion of his work, and our work too. Let us see which one of us can fill the place which it is impossible for your country yet to fill.

The question of education is the one demanding the most careful application of scientific methods. It was Gerlach's hope to have lived long enough to bring the entire system of the Berlin school into the hands of specialists. It was Gerlach, more than any one man, who believed in the centralization of the veterinary education of his country at one well-appointed institution. A few months before his death, he laid before the writer his ideal plan for the future: telling him of the many hindrances in his way—the greatest of which was want of funds; even then he hoped against hope to bring it about. Unknown, I think, to his colleagues, was the fact that he nourished a secret dislike to the present plan of having our special pathology taught by one or two men. "Divide your work: no time to study—no time to study," he would again and again repeat, and warn me against falling into this mistake in America. "No progress so," was frequently upon his lips in our many conversations. We may never cease to be grateful for his last work,—the introduction of a specialist as a physiologist to our school, and a laboratory, instruments, vivisection building, and everything possible so far as his means would allow. From this Professor

we have a right to expect much work of immense value, so soon as all is ready. This was the beginning; the ending is the sacred work of other hands. In his seven years' service, the expenses of the school have become doubled, and the institution, from a very inferior position, has taken the first rank in Europe. His printed works bear the character of the man—one and all; they can be termed *Contributions to Science*, for they are as valuable to human medicine as to the veterinary profession. Those having volume form are :—"Krätze u. Raude" (Scabies), "Allgemeine Therapie' (General Therapeuty), "Gerichtliche Thierheilkunde" (Veterinary Jurisprudence), and "Die Fleishkost des Menschen" (The Flesh we eat). Search where you will among his writings, you find nothing but the exclusive scientist. The name of Gerlach can never be associated with the production of those curses to our profession—*popular works on the diseases of our domesticated animals.* This apparently cold man was too deep and tender in his nature, to contribute thus to the torturing of the animals he loved, by half-educated quackery. His hatred of quackery was glorious; he would punish it with imprisonment for life had he had the power. Quacks were as brutes, torturing the truest friends he ever had—our dumb animals.

He leaves two sons, with their wives, to mourn his loss. How good a father he was, the writer well knows; what interest he took in the work of the student who would study, all can testify. Let us one and all take up the work still so incomplete, and do equally well our part towards its completion.

Army Veterinary Department.

Gazette, September 4.

9TH LANCERS.—Veterinary-Surg. J. A. Woods, from the Royal Artillery, to be Veterinary-Surg., vice J. P. Adams, transferred to the Veterinary Department.

ROYAL ARTILLERY.—Veterinary-Surg. W. D. Rogerson resigns his commission.

VETERINARY DEPARTMENT.—Veterinary-Surg. J. P. Adams, from the 9th Lancers, to be Veterinary-Surg.

Gazette, September 14.

Brevet-Colonel Sir F. W. J. Fitzwygram, Bart., from Lieut.-Colonel, half-pay, late 15th Hussars, to be Major-General, dated March 23, 1869.

ROYAL ARTILLERY.—First Class Veterinary-Surg. G. Evans, M.D., from the Army Service Corps, to be Veterinary-Surg., vice J. A. Woods, transferred to the 9th Lancers.

Notes and News.

TRICHINOSIS AND MEASLES IN PIGS IN GERMANY.—In disproof of the oft-repeated assertion that only one pig in 10,000 is the subject of Trichinosis, the *Deutsche Landwirthschaftliche Presse* quotes from a contemporary some particularly uncomfortable statistics. Between July 1875 and July 1876, 20,500 swine were insured against this disease, and 2000 against Measles, with the National Live Stock Assurance Society, at Cassel. Of this number

fifty-seven, or 1 in 360, contracted Trichinosis. It further appears that within a few months thirty-one claims on account of measly pigs were made in Hanover, one in Silesia, and twenty-three in the town of Cassel. On account of this high proportion, the office declined to issue any further policies as against Measles. The proportion of cases of Trichinosis to the total number of swine insured was 1 in 300 in Cassel, 1 in 450 in East and West Prussia, and 1 in 230 in Silesia and Posen. Since July 1876 the proportion of affected animals in the provinces near the Russian frontier has been even more unfavourable, and many of the insured have found 10 or even 15 per cent. of their pigs thus diseased. Among insured and uninsured together it may be safely assumed that at least 2 per cent. of the swine in these districts suffer from Trichinosis. It is added that at first only animals of the English breed were attacked, but the disease is now distributed among all races, more especially in those imported from Russia.

EUPHORBIA CANDELABRUM.—The Ovaherero tip their arrows with this vegetable poison, and the Hill Damaras introduce it in a liquid state into pools where wild beasts are known to drink; and the flesh of any animal thus destroyed is perfectly wholesome. But its most remarkable property is, that whilst it invariably kills the *white* rhinoceros, it is freely and harmlessly partaken of by the *black* species, whether the plant itself be eaten or an infusion of it drunk. The juice of the *Euphorbia candelabrum* has a milk-white appearance, and is very gummy, with an acrid taste. The wild bee is occasionally known to extract its food from the flowers, and in such a case the honey becomes more or less poisonous. Mr. Moffat mentions an instance of his party suffering much pain and inconvenience from having partaken of such honey. They felt as if their throats had been on fire.—*Andersen's Lake Ngami*, p. 81.

A DEADLY LOCALITY.—Froebel, in his journey from the coast of Texas to San Francisco, remarks, on coming to Carrizo Creek, on the borders of the Colorado or Stony desert: "Throughout this whole region—from the edge of the desert plateau through the gypsum ravines, as far as Carrizo Creek—the ground is strewn with the bones and skeletons of thousands of sheep, cattle, mules, and horses. The reader may form an idea of this scene, from the fact that of a single flock of sheep proceeding the year before from Northern Mexico to California, six thousand lay dead on this spot. Many of the dying animals appear to have crept in the pains of death into holes and corners among the wildest rocks. I found in these places numbers of skeletons wedged into almost inaccessible corners and narrow fissures. I have heard various opinions respecting the extraordinary mortality among animals driven from the Colorado across the desert, especially on the Carrizo Creek—a watering-place against the dangers of which we were strongly cautioned. Some asserted the waters to be poisonous; others thought the circumstance of drinking too freely, after a long thirst, offered sufficient explanation of the fatal effects; while others attributed them to certain plants growing in this neighbourhood, which are only eaten by animals when suffering extreme hunger. The plant pointed out to me as poisonous was a small *Euphorbia* covered with a grey film, which might justify this supposition. Another opinion appeared quite natural—that on approaching the termination of the desert the strength of the animals, exerted to the utmost by toil, hunger, and thirst, should at last give way. Probably the truth may be that these different causes combine to produce the result.—*Seven Years in Central America*, p. 536.

MALAGASY CATTLE PITS.—On his journey to the capital of Madagascar, Ellis writes: "Here I saw for the first time two pits called fahitra, in which oxen are confined and fattened. The pits, which were close to the houses,

were somewhat larger than the animal, and a little deeper than the top of his horns. Over one of these a covering of thatch was placed; and the food of the animals, fresh wet grass, was placed upon a ledge cut out of the clay sides of the pit, in a rude sort of rack."—*Visits to Madagascar*, p. 334.

POISONOUS SPIDERS IN RUSSIA.—At the present time there is an unparalleled increase of poisonous field spiders in the littoral provinces of the Black Sea, causing by their venomous bite great sufferings to the men and animals employed in transporting stores to the Russian army. According to the *Nikolaeff Vestnick*, the bite of these noxious insects produces first a sharp local irritation, and afterwards a swelling all over the body, especially towards the abdominal regions. Occasional cases of death occur, but these are rare; the sufferer, in the generality of instances, recovering at the end of three days. Poisonous spiders were first observed in Russia in 1875, chiefly in the south central provinces. Since then they have developed so largely as to become quite a plague, and now cover the whole of the provinces bordering on the northern coast of the Black Sea. Their rapid increase is ascribed to the destruction of forests—which, by causing a diminution in the number of birds and insectivorous animals, has deprived the country of its natural check against them.

DOGS.—An official document, printed by order of the House of Commons, showed that last year the number of dogs registered in Ireland was 339,011, and the amount of dogs' licenses received, £33,901 2*s.*; and the amount paid to towns, etc., after deducting expenses, £25,976 16*s.* 5*d.* From another paper it appears that in England and Scotland, in 1875, the number of dogs licensed was 1,302,158, and the amount of £325,540 paid to the Inland Revenue Board.

SPONTANEOUS GENERATION.—At a recent meeting of the Royal Society Professor Tyndall made a communication on "Further Researches on the Deportment and Vital Resistance of Putrefactive and Infective Organisms, from a Physical point of view." He first gave a *resumé* of the work done in the spring of 1875-6, which went conclusively to show that in the atmospheric conditions then existing in the laboratory of the Royal Institutions five minutes' boiling was found to be sufficient to sterilize the infusions in any of the many hundred flasks and tubes experimented on, both animal and vegetable infusions being used. In the autumn of 1876 Professor Tyndall resumed his experiments with hay infusions, but found that some, instead of needing only 5 minutes to sterilise them, required 15 minutes. The way in which he found that not only did the hay behave differently than in the previous experiments, but that also nearly all the tubes of other infusions experimented on in the Royal Institution showed decomposition, and how he traced all this to dry old hay in the laboratory, he described to the members of the Royal Institution in January last. Led thus to examine the old hay, he has found that in some cases the bulbs charged with infusion of it were not sterilised with even four hours' continuous boiling, and in some cases germs were found so indurated that four, or six, and in one case even eight hours, were not sufficient to deprive them of life. It is a question of obvious interest to the scientific surgeon whether those powerfully resistent germs are amenable to the ordinary processes of disinfection. They have been found competent to cause infusions, both animal and vegetable, to putrefy. How would they behave in the wards of a hospital? And, again, how do they act in establishments for preserving meat and vegetables in tins? The shaking of a bunch of desiccated hay might make the process of boiling quite nugatory. Professor Tyndall's later researches have made known to him that discontinuous heating for a short time will produce the death of the germs. An aggregate of four minutes in the one case will

effect what for continuous hours in the others could not. A temperature, too, far below the boiling point suffices. The fully-developed bacterium is killed at 140° Fah. Fixing the mind's eye upon the germ during its passage from the hard and resistent to the plastic and sensitive stage, it will appear in the highest degree probable that the plastic stage will be reached by different germs in different times. Some are more indurated than others, and require a longer immersion to soften and germinate. For all known germs there exists a period of incubation during which they prepare themselves for immergence as the finished organism, which have proved themselves so sensitive to heat. If during this period, and well within it, the infusion be boiled for even a fraction of a minute, the softened germs which are then approaching their phase of final development will be destroyed. By repeating this process every ten or twelve hours, and before the least sensible change has occurred in the infusions, each successive heating will destroy the germs then softened and ready for destruction, until after a sufficient number of heatings the last living germ will disappear. Another means of destruction has been found to be to deprive the infusions of air. Unboiled infusions deprived of air by five or six hours' action of the Spreugel pump are reduced to permanent barrenness. Like higher organisms, the bacterial germs are poisoned by the excess, and asphyxiated by the defect of oxygen.

EPIZOÖTY AMONG FISH.—Large numbers of dead and rapidly-putrefying fish having been found of late on the shores of the Barlewitzers Lake, in West Prussia, the sanitary inspector of this district has been instructed to inquire into the causes of the fatality. After due investigation he has come to the conclusion that it is chiefly attributable to the decay of vegetable matter and the development of countless algæ, whereby the oxygen necessary to the life of the fish is largely absorbed, more especially as the water has been but imperfectly aërated of late, owing to the long continued absence of winds. Some danger to the inhabitants of the district is feared, if this state of affairs should continue, as it is difficult to prevent them eating the diseased fish, though numerous dogs, cats, fowls, and ducks have already died from feeding upon them. The local police have orders to collect and bury the dead fish daily, and also to urgently warn the people against eating them, and against drinking water from the lake.

Correspondence.

NITRITE OF AMYL.

To the Editor of the VETERINARY JOURNAL.

SIR,—I was pleased to see, in the August number of your *Journal*, that the case I reported as having been cured by this drug had given rise to further observations on its physiological action. Allow me to correct one or two remarks made by Mr. Allman. He says that the remedy is not new: now, I must maintain my first assertion that it is so, with regard to veterinary practice; and, in fact, in the latter portion of his notes he admits it. If he will refer to my report, he will find I say, "It has been tried on the rabbit and frog, and latterly, in a few cases, on the human subject." I carefully watched my case, and the action the drug had on the patient, and I failed to see any fulness or distention of the head. The pain was relieved instead of increased, and I could not detect any difference in the action of the heart;

the pulse was always about the same, and the breathing after an administration was considerably quieter. I intend persevering with this drug in the next case that comes under my notice; and I hope others will do likewise, and not cry out before it has had a fair trial. In the meantime, I would just remark that some medicines are found next to useless on the human being, and prove very successful in the lower animals.

I am, yours respectfully,

ALEXANDER LAWSON.

Manchester, *September 8th*, 1877.

GLANDERS OR INFLUENZA.

To the Editor of the VETERINARY JOURNAL.

SIR,—In this month's *Journal*, I observe under the above heading the reports of two important trials. In the first, I find a professional witness is made to say that one of the acknowledged tests of Glanders is the discharge from the suspected animal floating or sinking in water. Surely there has been some mistake in reporting this evidence!

In the next case reported, I find Professor McCall says that in Glanders "they had always miliary tubercles in the lungs." Now, from the high position that Professor McCall holds in the profession, his evidence must necessarily carry great weight with it; and as this is an important question, I should like to ask, through your *Journal*, the opinion of the profession upon the subject. I may say that I have made *post-mortem* examinations of what I have thought were undoubtedly glandered horses, and my experience does not bear out Professor McCall's opinion.

Yours truly,

Newcastle-on-Tyne. C. STEPHENSON.

'CLASSICAL EDUCATION AND SCIENTIFIC ATTAINMENTS."

To the Editor of the VETERINARY JOURNAL.

SIR,—To Mr. Greaves' query there should be but one sufficient answer: "The importance of classical education and scientific attainments cannot be overrated." Not that practical instruction and knowledge are to be lost sight of,—on the contrary; but as the one is useless without the other, so the standing of the veterinary surgeon will never be better as long as the ornamental element is so sadly wanting. That education tends to refinement, no one will venture to deny; and although it is possible for vulgar men to be scientific, such are vastly in the minority; and for our "leaders of thought" to advocate anything but a combination of scientific and practical instruction in these days, would be suicidal and pusillanimous. The fears and statements of the "one learned Professor" are, I feel sure, unfounded, and portray the natural bent of *his* mind; the very introduction of practical examinations of late years sets aside Mr. Greaves' forebodings. In my humble opinion there is nothing radically wrong in the method of teaching; the wrong *has* been in admitting to the Colleges many who would scarcely pass muster at a School-Board examination, and were incapable of appreciating the scientific portion of their curriculum. Give the world to understand that the profession itself is worthy of classical and scientific acquirements, and the student-ranks will soon be filled from the better class of the community, who would naturally be above vulgar associations, and so the "end"—which, after all, is the advancement of our calling—will be gained. Of the vulgar associations it is

unnecessary to speak: they will present themselves prominently, and, I regret to say, sometimes temptingly, only to be shunned by the higher feelings that attend education.

I am, sir, yours obediently,
HENRY DYER.

Knightsbridge, *September 14th*, 1877.

VACCINATION IN CANINE DISTEMPER, AND RABIES CANINA.

[We have been requested to publish the following correspondence. It is indeed astonishing to find any one occupying the position of the Hon. G. F. Berkeley, persisting, without any knowledge of the subjects discussed, in promulgating such absurd and dangerous notions. It will be seen that the correspondence refers to Mr. Hill's paper on Canine Distemper, which appears in the present issue of the *Journal*.]

"*To the Editor of the 'Morning Post.'*

"SIR,—Having read in your impression of this day's date what was termed an 'interesting paper' on 'Distemper in the Dog,' read by 'Mr. Hill, a veterinary surgeon at Wolverhampton,' in which paper it was denied that vaccination had any power over the Distemper, in the cause of humanity I most distinctly affirm that vaccination, properly accomplished under the hands of the medical profession, never fails in preventing Distemper. This assertion I make after more than sixty years' experience in my large kennels of staghounds, foxhounds, and other dogs. Be it also understood, that none but gentlemen in charge of large parishes, and in the medical profession, can give the fact a fair trial, as they alone have access to the best lymph. To this day Mr. E. P. Philpotts, M.D., of Poole, kindly officiates for me. A veterinary surgeon has not the means at his disposal to give the experiment a fair trial. GRANTLEY F. BERKELEY.

"Alderney Manor, Poole, *Sept. 4th*."

"*To the Editor of the 'Morning Post.'*

"SIR,—In reply to a letter in the *Morning Post* of yesterday, by the Hon. Grantley F. Berkeley, respecting a paper I recently read before a meeting of the Midland Counties Veterinary Medical Association, on 'Distemper in the Dog,' I ask your kind permission to submit the following remarks for insertion in your next issue. I observe your correspondent heads his letter 'Vaccination as a Cure for Distemper in Dogs.' My remarks on the subject were confined to it as a 'preventive' measure. The former is to me a new feature in the treatment of the disease, and would, I do not hesitate to say, be as futile as the latter. The Hon. G. F. Berkeley is evidently ignorant as to the means placed at the disposal of veterinary surgeons for testing vaccination; and his ideas with respect to the obtainment of lymph are but shadowy, and certainly not a flattering compliment to medical practitioners in small parishes, nor yet very comforting to their patients. Wolverhampton, however (which, by the way, is not a small parish), is honoured with the presence of an efficient and eminent staff of medical men, none of whom assume the qualifications of a profession to which they do not belong, and who have at all times courteously supplied me, when I have required it, with *good lymph*, equal to Dr. Philpott's. I will not take up your valuable space in defending the reflection which the hon. gentleman has thought fit to cast on the veterinary profession. Suffice it to say, there have been and still are veterinary surgeons of quite as extensive experience, with this important addition, *united*

with science, as the Hon. G. F. Berkeley's. I have not had sixty years amongst dogs, but for fifteen years I have been an owner and breeder of the animal; and my professional experience has been sufficiently long to prove the utter fallacy of vaccination as a cure or preventive of Distemper. And for 'the cause of humanity,"—in other words to prevent useless and foolish torture,—I again make the remark that has excited the hon. gentleman's contradictory powers: viz., 'Vaccination has been extolled and condemned —condemned justly, inasmuch as there is not a shade of analogy between Canine Distemper and Small-pox.' In conclusion, I quite fail to see that the fact of Dr. Philpott's officiating as canine vaccinator to the Hon. Grantley F. Berkeley in any way tends to strengthen the argument of the latter.

"I remain, sir, yours obediently,

"Wolverhampton, *Sept. 7th.*" "JOHN W. HILL, M.R.C.V.S.

"*To the Editor of the 'Morning Post.*'

"SIR,—Having seen in your impression of yesterday a letter from Mr. Hill, a veterinary surgeon, purporting to be a reply to a previous letter of mine on 'Vaccination and Distemper in Dogs,' I scarcely think it worth while to say any more save that I never said that 'vaccination' was 'a cure for Distemper.' I asserted that it was a never-failing 'preventive' of that devastating disease, if resorted to efficiently and in time. Surely over sixty years' practice among thousands of hounds and dogs, 'for love, not money,' may compete with the casualties brought under a veterinary surgeon's notice: but of this enough. I conclude my letter with the following recorded facts, commencing with the 'Durham foxhounds.' Whole packs of hounds in Durham, Essex, and other places have been doomed to cruel extermination on the mistaken verdicts of veterinary surgeons. Thousands of people have been rendered nervously unhappy, moved by the horrors falsely attributed to a disease which in their cases never existed, and have died under the worst torments of afflicted minds, and all this because men in peculiar situations have ventured to give a verdict on that which they knew nothing about. To conclude: of this I am certain, that the veterinary practitioners have killed more dogs than they ever cured, and by their rash assertions as to 'Hydrophobia' have made more misery for the human mind than their hereafter and perpetual silence on the subject could obliterate. If you prevent Distemper in dogs by 'vaccination' well performed, you decrease the madness in dogs, which in numberless cases arises from the effects of the 'common Distemper,' but which is often vulgarly termed 'Hydrophobia.' Dogs utterly insane through Distemper, and for the time mad to all intents and purposes, will most greedily lap or lap at water; but the hydrophobic and deadly diseased shrinks convulsed by its approximation to fluid, and hence arises the term applied to it long ago by the Greeks. If, then, the stupid annunciation that hydrophobic dogs are not terrified by the sight or touch of water, why use the dreaded term? Why not call the bite arising from fatally affected teeth by some more applicable name? GRANTLEY F. BERKELEY.

"Spetchley Park, Worcester, *Sept.* 11."

To this Mr. Hill replies as follows:—

"DOGS AND VETERINARY SURGEONS *versus* THE HON. GRANTLEY F. BERKELEY.

"*To the Editor of the 'Morning Post.*'

"SIR,—In reply to the Hon. Grantley F. Berkeley's second letter, in your issue of to-day, I have only to observe, his remarks are so palpably devoid of pathological knowledge that it is useless for a professional man to discuss such matters with him. With regard to his grand charge against veterinary

surgeons, it is so extremely absurd, and so utterly incorrect and unfounded, that undoubtedly it will be treated by the majority, if not the whole, of the profession with that silence which is usually indicative of contempt.

"As to the *erroneously* termed 'Hydrophobia.' The dangerous ideas the Hon. Grantley F. Berkeley endeavoured (*unsuccessfully*) to propagate some years ago are too well known, and estimated at their just value by a sensible British public, to need comment upon here. Suffice it to say that *the misery of the human mind*, which he so charitably accuses us of causing, would indeed have been very great had not men who knew better contradicted the ridiculous 'water doctrine' enunciated by the Hon. Grantley F. Berkeley.

"In conclusion, if your correspondent were well informed on the latter subject he would know that 'Hydrophobia' is *not* a term used in veterinary practice, and thereby have escaped tumbling into another blunder.

"I am, sir, yours obediently,

"JOHN W. HILL, M.R.C.V.S.

"Wolverhampton, *September 13th*, 1877."

CORRIGENDA.

At p. 176, line 19, of our last issue (Dr. Evans' paper), for "Now I am sure that he will allow that there *must* be an enormous increase of urine excreted, without any increase of degraded tissue products," read "Now I am sure he will allow that there *may* be an enormous increase," etc. At p. 179, line 23, for "farrier surgeon" read "farrier serjeant."

ANSWERS TO CORRESPONDENTS.

Communications from Messrs. R. S. Reynolds, G. Wyer, F. S. Billings, Hepburn, Parker, Kirk, Merrick, and others, will appear in our next.

Communications, Letters, Books, etc., Received.

COMMUNICATIONS have been received from B. A. W. Powell, 3rd Light Cavalry, Saugor; H. Olver, Tamworth; J. W. Hill, Wolverhampton; F. S. Billings, Berlin; W. A. Edgar, Dartford; A. Lawson, Manchester; C. Stephenson, Newcastle-on-Tyne; R. Paterson, Downham Market; G. Wyer, Donington, Lincoln; R. S. Reynolds, Liverpool; H. Dyer, London; T. H. Simcocks, Drogheda; W. Hepburn, Coldstream; J. M. Parker, Birmingham; J. Kirk, Edinburgh; F. H. Merrick, Northampton.

BOOKS: *F. H. Lascelles*, Horse Warranty on the Purchase and Sale of Horses; *J. Cowie*, Reminiscences of the Medical and Veterinary Arts; *G. Mitchell*, Cumberland Disease; *F. Roloff*, Die Rinderpest; *G. B. Ercolani*, Dell' Onychomykosis dell' Uomo e dei Solipedi; *M. L. Lafosse*, Traité de Pathologie Vétérinaire (vols. i. and ii.); *T. M. Dolan*, The Etiology of Typhoid Fever; *George Nevile, M.A.*, Horses and Riding; *Robert Moreton, M.R.C.V.S.*, Horse Breaking.

JOURNALS: *Journal of the Anthropological Institute; Annales de Méd. Vétérinaire; Archives Vétérinaire; Recueil de Méd. Vétérinaire; Oesterreichische Vierteljahrs für Wissenschaftliche Veterinärkunde; Deutsche Zeitschrift für Thiermedicin; Archiv fur Wissenschaftliche und Practische Thierheilkunde* (two parts); *Wochenschrift fur Thierheilkunde und Viehzucht; Practitioner; Edinburgh Medical Journal; Lancet; Medical Press; National Live Stock Journal; Melbourne Medical Record; Baily's Monthly Magazine; Repertorium der Thierheilkunde; Der Thierarzt.*

NEWSPAPERS: *Sportsman* (two copies); *Farmer; Mark Lane Express; Agricultural Gazette; North British Agriculturist; Land and Water; Live Stock Journal; Australasian; Melbourne Leader; Illustrated Australian News; Australasian Sketcher; Marlborough Times; Broad Arrow.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.